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A Consideration OF RECENT SEROLOGICAL WORK ON THE MENINGOCOCCUS.

By F. W. ANDREWES, M.D. Oxon., F.R.C.P. Lond., F.R.S.,

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ONE of the difficulties which beset attempts at the classification of bacteria is the fact that within the limits of what, on general biological grounds, would be deemed a good "species" there are often found sub-species or races which differ only in their serological properties. In some cases the differences are slight and of little practical importance: we can employ a single strain of the typhoid bacillus for purposes of general immunisation against the disease. In other cases the differences are sharply defined, as in the case of the pneumococcus, and here a single strain seems of little value for purposes of general prophylaxis or serum treatment. But in any case the differences between such parallel strains are of a very subtle kind and are revealed only in the response of the animal body to the presence of the bacterial protein; slight differences in the latter evoke slightly different antibodies.

The property of immune serum which has chiefly been employed in defining serological races of bacteria is agglutination, though other reactions can also be used, such as fixation of complement or protective power in animals. As regards agglutination, we possess three methods of employment—namely, (1) agglutination; (2) agglutinogenic power; and (3) the power of absorbing agglutinin. Of these three methods the first is the simplest, but the third the most accurate, and of all it may be said that, while a positive result is of definite value, a negative result is not invariably conclusive.

One of the latest organisms to be submitted to close serological scrutiny is the meningococcus, because the recent outbreak of cerebro-spinal fever has brought it into prominence. The present is perhaps an opportune moment for a short review of the work accomplished in this country since the beginning of the epidemic in the winter of 1914–15, for there has just appeared an important series of papers on the subject—"Reports to the Local Government Board on Public Health and Medical Subjects (New Series, No. 114): Further Reports on Cerebro-spinal Fever."

STATE OF KNOWLEDGE AT BEGINNING OF EPIDEMIC.

Before discussing this recent work it will be convenient to consider the state of our knowledge when the epidemic commenced. When Still, in 1898, described the coccus he found in the posterior basic meningitis of infants, he was in some doubt as to its identity with the organism which Weichselbaum had described 11 years previously from cases of cerebro-spinal fever in Vienna. His chief reason for doubt was the fact that his coccus showed much more prolonged vitality on ordinary culture-media. Still's organism is now, however, universally recognised as a true meningococcus, just as the posterior basic meningitis of infants is admitted to be an endemic form of cerebro-spinal fever.

Arkwright, in 1909, was unable by serological methods to establish any specific differences between epidemic and sporadic strains of the meningococcus; the differences between individual members of each group were as great as any found between the two groups.

Serological differences amongst strains of meningococci had been established in Germany by Kutscher; he employed absorption methods, by which he was able to show marked differences amongst certain spinal and pharyngeal strains, though not of a kind to prove any sharp distinction between the spinal strains and those derived from the throats of non-contacts in Berlin. Further work in Germany was carried out on the same lines by numerous observers, largely with the object of establishing the identity or non-identity of meningococcus-like organisms from the healthy pharynx with the classical organism. Improved methods of agglutination were introduced, but these later observers were no more able than Kutscher to demonstrate constant differences between spinal and pharyngeal strains greater than existed amongst spinal strains alone. The term "pseudo-meningococcus" was, however, introduced for pharyngeal strains which could not positively be identified with the genuine organism.

The prolonged and elaborate investigations of Elser and Huntoon in the United States were disappointing in their issue. They found that a large proportion of the strains of meningococcus with which they worked were relatively inagglutinable, at least by the methods they employed; but they were able to show that such strains, though inagglutinable, might yield a serum of good agglutinating power, if not for themselves at least for certain other strains.

The first attempt at a definite grouping of meningococc was made in France by Dopter. In 1909 he recognised, in the pharynx of contacts, cocci which, while in other respects resembling the meningococcus, were not in serological conformity with that organism. He termed these "parameningococci," and two years later he was able to show that they could set up meningitis, for he found them in cases of the sporadic disease. In cases of such infection which were not benefited by ordinary antimeningococcal serum, he claimed a curative value for a serum prepared with the parameningococcus. Other French workers confirmed the distinction, and amongst parameningococci themselves indications were found of a further serological subgrouping into three varieties.

The state of our definite knowledge on this subject when the outbreak of cerebro-spinal fever in England began to assume epidemic dimensions was therefore, shortly, as follows. It was recognised—

1. That the causal agent in epidemic cerebro-spinal fever and in the endemic posterior basal meningitis of infants was the meningococcus. No cultural distinctions could be made between the cocci found in these two affections, nor could any adequate or constant serological differences be established between them.

2. That the meningococcus was divisible into certain subgroups by serological means, and notably by the absorption of agglutinin test. The number of such sub-groups was ill-defined, but they appeared to fall into two main divisions, designated by Dopter "meningococci" and "parameningococci" respectively.

3 That from the pharyngeal mucus, both of contacts and non-contacts, cocci could often be cultivated which had all the biological characters of the meningococcus. In some cases complete serological identity with that organism could be established; in other cases it could not, and some writers stigmatised such unplaced forms as "pseudo-meningococci."

RECENT RESEARCH WORK IN THIS COUNTRY.

Turning now to recent work in this country, we find it prompted by two immediate needs. The first was the provision of an adequate antiserum for treatment, since the stocks available proved of little utility. The second lay in providing means for recognising the meningococcus, especially in the pharyngeal secretions. Apart from two sets of observations carried out by Arkwright and by Ellis in France, both of which tended to support Dopter's classification of meningococci into two divisions, the work has been carried out by two independent groups of observers in this country, a military and a civil.

On behalf of the military authorities the Medical Research Committee organised a numerous band of workers all over the country, under the guidance of Lieutenant-Colonel M. H. Gordon, at the Central Cerebro-spinal Fever Laboratory at Millbank. This work has been carried out entirely amongst the military population with the special object of the prompt control of the disease. On the other hand, the Local Government Board turned the energies of its bacteriologists in the laboratories at Carlisle Place to a detailed study of the meningococcus from a more abstract point of view, but with special reference to the nature of such cocci from the pharynx of non-contacts. The material they employed was mainly from the civil population.

It is necessary to emphasise here the differences between these two sets of researches, both in their immediate objects and in the conditions under which they were carried out, for we can thus understand how certain differences have arisen in the conclusions reached.

WORK CARRIED OUT AT THE CENTRAL CEREBRO-SPINAL FEVER LABORATORY

Let us consider first the work accomplished in the Central Cerebro-spinal Fever Laboratory, the results of which have

been published in a number of papers in the *Journal of the Royal Army Medical Corps* and elsewhere, and recently in a special report issued by the Medical Research Committee.[1] The tasks undertaken by Lieutenant-Colonel Gordon and his colleagues have been arduous and very varied in character and have resulted in many advances in practical measures of diagnosis and treatment, including an improved culture-medium adapted for general use and greatly improved methods for the cure of carriers.

But I am here concerned only with one branch of their work, that relating to the serological differentiation of meningococci. This was accomplished by means of the absorption of agglutinin method applied to a large number of spinal strains. By this means Gordon separated the strains into four groups, of which two were common and two comparatively rare, though sometimes numerous in certain local outbreaks: he termed them Types I., II., III., and IV. Later experience showed that substantially all the spinal strains met with in military cases of cerebro-spinal fever could be referred to one or another of these types, which were very properly regarded as the "epidemic types" concerned in the existing outbreak. It was also shown that by mere agglutination tests, quantitatively carried out, a coccus could almost always be referred to its type, without the necessity for absorption tests.

Captain Tulloch has confirmed these results and somewhat amplified them. By employing the absorption test he has demonstrated the existence of three sub-groups in Gordon's Type II.—always the most puzzling type when reliance was placed on a single serum. Out of 104 spinal strains, fully tested, he was able to refer 101 to Gordon's four types; one of the exceptions was from a case of posterior basic meningitis.

Certain results of much practical importance followed the application of this knowledge.

1. By supplying typical strains to those engaged in making serum for therapeutic use, sera were prepared of greatly increased efficacy in treatment.

2. It was demonstrated by several workers that the type of meningococcus invariably present in the pharynx early in the disease was always the same as that found in the cerebro-spinal fluid. This not only confirms the idea that the disease is spread by means of the naso-pharyngeal secretions but also suggests that every case of cerebro-spinal fever arises in a person who is already a carrier.

3. It became possible in many cases to trace the spread of the disease by the identification of carriers bearing given types of the coccus, thus facilitating epidemiological investigations.

4. When the carriers in any locality became too numerous to deal with, a test was afforded by which the carriers of epidemic types of the coccus could be sorted out, as presumably the most dangerous, and separately treated.

It will be realised that this serological work had a direct bearing on the immediate control of the disease amongst the military population, and it was remarkable for the energy and rapidity with which it was carried out. It has been supplemented since by further experimental observations supporting the more or less specific nature of the bodily reactions against the four types of meningococci.

But although we must regard the work as well adapted for the purposes in view it must be remembered that the material which formed its basis was drawn from a limited field, and we must beware of assuming that its results convey the whole truth about the meningococcus. Gordon's conclusions are drawn almost solely from a single epidemic of the disease as it affects adults, and in his latest report he assumes an attitude which appears to me too dogmatic. He speaks of his four types as "species"—a claim which no biologist could support—and he excludes from the true meningococci those pharyngeal strains which fail to agglutinate with his four type sera, calling them "pseudo-meningococci." Here I find myself in disagreement with him.

During the past two years I have submitted the cocci from all cases of cerebro-spinal fever at St. Bartholomew's Hospital to agglutination with the four sera kindly supplied me from time to time by Major Hine at Millbank. Twenty-six cases have been in children under 5 years old, and 8 of these have agglutinated so poorly with the sera that I could not regard them as conforming fully to the types—one, indeed, failing to agglutinate at all. Although 18 of the cases did conform to one or other of the four types, I am disposed to believe that the meningococcus in the posterior basic meningitis of infants not rarely presents strains which differ from those of the epidemic form of the disease in adults. And if this is so the pharyngeal cocci from non-contacts cannot necessarily be excluded from the group of true meningococci on serological grounds alone. The most which we can legitimately assert is that such non-conforming or imperfectly conforming cocci are not examples of the epidemic types seen in adults during the present outbreak.

RESEARCHES OF LOCAL GOVERNMENT BOARD OBSERVERS.

Let us now pass to the researches carried on by the Local Government Board observers, which have more immediately prompted this review. A year ago they presented preliminary reports based on their first year's study of the meningococcus, and especially of "non-contact" strains, in which they arrived at conclusions in a measure divergent from Gordon's. They were unable to recognise more than two main serological groups of the coccus, and these they found connected by transitional and debatable forms. So far as the number of groups is concerned the difference is apparent rather than real, for Gordon admits relationship between his Types I. and III., which are often brought down by the same serum, though unequally, and similarly between his Types II. and IV.

The present report contains what we may assume to be the final conclusions of the Local Government Board workers at the end of two years' work on the races of the meningococcus. They are embodied in six papers by as many different writers, all having as the primary object of research the relation between the cocci obtained from the spinal fluid of cerebro-spinal fever and similar organisms from the naso-pharynx, chiefly in non-contacts. In other words, the aim was to ascertain the distribution of the infecting agent amongst the population at large, and the fundamental point was to establish the relation between the pharyngeal cocci and known pathogenic strains. The problem was regarded as a pure piece of scientific research and was carried out in what may be described as an atmosphere of academic seclusion and with no need for haste. It is probable that no micro-organism has ever received a more laborious and impartial study than we find recorded in this series of papers.

Summary of Results of Investigation by Dr. Griffith.

As an example of the methods pursued by the Local Government Board workers, it will be convenient to take the paper by Dr. F. Griffith, since it is perhaps the most elaborate, and contains some interesting and original views as to the meningococcal protein viewed as an antigen.

The first step was to prepare high-titre sera from known pathogenic strains of the meningococcus ("spinal sera") and Griffith's first table shows the result of testing 66 spinal strains against six such sera. The cocci fall into two fairly well marked groups—one reacting to two of the sera, the other to the remaining four sera, but not always to an equal degree. The grouping is not quite sharp, for some of these undoubtedly pathogenic strains are indeterminate, either relatively inagglutinable with the sera employed, or agglutinating equally with sera of the two groups. Nevertheless it is sufficiently striking, and Griffith showed in a former paper that it is correlated with a difference in fermentative power—the cocci of Group I. having a preference for maltose and those of Group II. for glucose. In a general way Griffith's Group I. appears to correspond with Gordon's Types I. and III. and with the meningococcus of Dopter, while Group II. corresponds with Gordon's Types II. and IV., and with the parameningococcus of Dopter.

In Griffith's second table we find the reactions of 86 pharyngeal meningococci to the same six spinal sera. The result exhibits a similar grouping, but with the difference that representatives of Group I. are much less numerous amongst the pharyngeal than amongst the spinal strains, while indeterminate forms are far more numerous.

The next step was to prepare sera from pharyngeal strains of the meningococcus, and thus to test their agglutinogenic powers. Tables are given showing the effect of such sera upon both spinal and pharyngeal strains. The latter are found to be, on the whole, less well defined than the spinal in agglutinogenic power, as they had proved to be in agglutinability, but this indefiniteness is only what had been already observed in certain spinal strains. As a rule, the

[1] Special Report Series, No. 3. Bacteriological Studies in the Pathology and Preventive Control of Cerebro-spinal Fever among the Forces during 1915 and 1916.

spinal cocci were well agglutinated by the pharyngeal sera, though seldom to full titre.

Finally an elaborate series of absorption experiments is recorded, dealing with a large number of cocci and sera, both spinal and pharyngeal. For the details of these the paper itself must be consulted, for they are too numerous and complicated for summary in a short review. But they lead up to a subdivision of the two main groups into a number of sub-groups, and to a hypothesis as to the varying structure of the meningococcal antigen which is interesting and novel, and which receives considerable support from the observations described.

Put briefly, the hypothesis is as follows. The antigen of the meningococcus consists of two main components, present in unequal amount in the two main groups, each component again being liable to slight variations in structure. Group I. sera are shown to contain three agglutinins, which Griffith denominates A, B, and C, doubtless corresponding to three variations of the Group I. antigen: one, two, or three of these agglutinins may be present in any given serum. Group II. sera are similarly shown to contain at least four agglutinins. It is suggested that the meningococci of low pathogenicity, into which group a number of pharyngeal strains fall, contain antigens of simple structure belonging to Groups I. and II. in nearly equal proportions, and that in relation to the increase in pathogenicity the antigens become more and more complex, culminating in the epidemic types which have recently prevailed amongst spinal strains. All this is speculation, maybe, but it is speculation based on careful experiment, for which chapter and verse are fully given, and which offers a reasonable explanation of the observed facts. The final conclusion at which Dr. Griffith arrives is that all the forms, whether from the pharynx or meninges, which can be culturally identified with the meningococcus, are to be regarded as that organism in a biological sense.

Conclusions Reached by Other Investigators.

These conclusions are generally supported in the independent paper written by Dr. W. M. Scott. This paper is based on the examination of 60 strains of spinal and 71 strains of pharyngeal meningococci, distinct from those which were the subject of Dr. Griffith's work. Nineteen sera were produced from various spinal and pharyngeal strains, and were employed on much the same lines as Dr. Griffith had followed, the absorption test being largely used. The result was a subdivision into two main groups, but, perhaps because he worked with a different set of cocci and sera, the sub-grouping reached by Dr. Scott is not identical with that of Dr. Griffith. He found that in Group I. there was a main group and at least five subsidiary groups, and in Group II. a main group and at least two subsidiary groups. These differences are not surprising when it is considered that the numbers of strains studied were limited and the possible variations of the meningococcal antigen practically infinite. Dr. Scott has not indulged in the constructive speculations which form so interesting a feature of Dr. Griffith's report, but his work bears the same stamp of patient thoroughness, and his final conclusion as to the specific identity of spinal and pharyngeal meningococci is the same.

Although space fails for a review of the papers by Dr. Ponder and Dr. Lewis, it may be said that they are in complete accord in their general conclusions with those of the previous papers; Dr. Nabarro does not deal with the serological side of the question. By no means the least interesting paper in the report is that written by Dr. Eastwood, who contributes a philosophical essay on the whole subject of the absorption of agglutinin test and the division of bacterial species into serological sub-groups—an essay well worth careful study on account of his acute criticisms on the subject. He raises the question whether the differences between related antigens may not depend upon stereo-chemical configuration, and is disposed to argue in favour of this: it is an interesting suggestion, but one which at the present time seems insusceptible either of proof or disproof. As regards the unity of the meningococcus Dr. Eastwood sums up very definitely: he holds that cultural tests, adequately performed, suffice for the diagnosis of the species, though he is far from denying the utility of serological study for special purposes.

CAUSE OF DIVERGENT VIEWS.

From the foregoing short summary it will be apparent that the conclusions of the different Local Government Board workers are opposed to the views which Lieutenant-Colonel Gordon has recently expressed as to the delimitation of the meningococcus as a species. And I am bound to confess that their picture of the races comprised within its limits is one which appeals to me, as a biologist and evolutionist, more than Gordon's conception.

It is not difficult to see how the difference in opinion has come about: indeed, it seems the natural outcome of the different fields of work. If there is any truth in Griffith's view of relatively unspecialised races of the coccus often found in the normal pharynx, from which have arisen the pathogenic types, with their higher antigenic complexity, seen in the epidemic form of cerebro-spinal fever, it almost necessarily follows that the observer whose purview is limited, by the nature of his material, to the most specialised and virulent types, will arrive at different conclusions from the man who works largely with the unspecialised as well as with the specialised forms of the coccus. Of the two, the latter seems to me the more likely to be correct in his generalisations because his point of view is the wider. Gordon's work, on the other hand, is probably the better adapted for measures designed to control an epidemic; he has limited himself to his four "epidemic types" and very properly concentrated his attention on these as the immediately dangerous cocci. He only overshoots the mark when he elevates his types to the rank of species and seeks to exclude from the conception "meningococcus" the less virulent races which form the rank and file.

Two years ago Professor Bulloch, Professor Hewlett, and myself were invited by the Medical Research Committee to report upon the observations on cerebro-spinal fever made in various laboratories during the first year of the war. In our report we suggested that the meningococcus, widely spread as a saprophyte in the human naso-pharynx, was in non-epidemic times of insufficient virulence to attack any but the most susceptible of the population (posterior basic meningitis of infants), but that increase of virulence might enable the coccus to attack young adults also, and give rise to the epidemic form of the disease. At the time we put forward this suggestion we felt that it was an inference only, unsupported by any sufficient basis of observation or experimental fact. It is a great satisfaction to me to find, in the work recorded in this report to the Local Government Board, and especially in Dr. Griffith's paper, an analysis of the different races of the meningococcus which supplies the very basis of fact required to support the opinions we then ventured to put forward.

A WORKING HYPOTHESIS.

The picture which is left on my mind, on consideration of all the serological work which I have attempted to review, is a definite, though not a very simple one, and may, I think, be accepted as a fair working hypothesis in the present state of our knowledge. It is as follows.

The meningococcus is a single, definite species, recognisable by its cultural characters and fermentative reactions, and widely spread as a pharyngeal saprophyte—often a transitory one. In its most primitive form it is a relatively harmless organism, but even at this stage its protein presents two antigenic components. These two components are rarely evenly balanced, and from a serological point of view there emerge two primary races of the coccus—Group I. and Group II.—which correspond to the meningococcus and parameningococcus. The latter term is a misnomer since both are true meningococci. The term pseudo-meningococcus is equally erroneous; so far as it has any meaning it signifies a meningococcus of primitive type and low pathogenic power.

Under ordinary circumstances the bulk of the saprophytic meningococci of the pharynx are of this low type and mostly fall under Group II., though some are indeterminate. Even in non-epidemic times certain strains of these simple cocci possess sufficient virulence to attack the very young: hence we always have with us sporadic cases of cerebro-spinal meningitis.

For unknown reasons there is a tendency at times for certain strains to increase in virulence, and this is accompanied by an increased complexity in the structure of the antigen, taking different forms in different strains; we do not know whether the increased complexity is due to the increased virulence or vice versâ. The phenomenon is seen in both primary groups, but, on the whole, more in Group I. than Group II., so that, whereas in the less virulent forms Group II. is the commoner, in the more highly virulent ones the proportions

become more equal. When cerebro-spinal fever attains epidemic prevalence the virulent strains concerned stand out with relative but not absolute distinctness. The strains in question are possibly different in different epidemics: in the recent outbreak in this country four such strains are recognisable, two belonging to Group I. and two to Group II. The serological recognition of such epidemic types is of manifest importance, both for the preparation of suitable therapeutic sera and for the sorting out of the more dangerous types of carrier.

Such a conception as this appears in harmony with the observed facts in the recent epidemic, and serves to reconcile the apparent discrepancies in the results put forward by different workers on the subject.

TWO CASES ILLUSTRATING PLASTIC AND DENTAL TREATMENT.

BY H. D. GILLIES, F.R.C.S. ENG.,
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CASE 1. *Re-formation of the chin and lower lip by double-pedicled bridge flaps and cartilage graft.*—This is shown as an attempt at restoration in that not uncommon class of gunshot wound of the jaw in which the whole body of the mandible and the soft overlying tissues have been blown away *en masse*. The photograph of this patient, taken soon after admission, sufficiently explains the extent of the lesion (Fig. 1, Case 1). It is an interesting point to note that this gallant fellow walked several miles to the dressing station on July 14th, 1916, during the battle of the Somme, and this very feat of endurance, maintaining, as it did, the upright position, may have prevented an emergency tracheotomy or even a worse fate. The loss of the lower lip and tissues of the chin is complete, while the amount of mandible remaining is represented by the thinned and atrophied

CASE 1.—(1) Condition on arrival. (2) Condition when healed. (3) First operation; result. (4) Second operation; first stage. (5) Second operation; side view. (6) Second operation; second stage; pedicles returned to scalp.

ascending ramus of the right side, and by the ascending ramus, angle, and one molar tooth on the left. The condition in January, 1917, after the healing process was complete and the general condition more satisfactory, is shown in Fig. 2 (Case 1).

At this stage the first operation, which took place on Feb. 27th, 1917, was performed under chloroform-oxygen anæsthesia in the sitting position, administered by Lieutenant R. Wade, at the Cambridge Hospital, Aldershot. The main features of the operation were the freeing of the tongue and the making of the flap which formed the basis of a new lip. The result, as far as it went, was satisfactory, as shown in Fig. 3 (Case 1), but the absence of the mental prominence as well as the loss of functions were left to be dealt with until a later stage.

A serious attempt to bulg out the new "lip" by traction from a head-piece was madein conjunction with Captain W. Kelsey Fry, M.C., at the time of this operation, but it was badly tolerated and the result was not gratifying. In view of the general shortage of tissue, plastic flaps from the neck or cheek were not indicated, and in view of the success of the double-pedicled embedded flaps and of the experience one has had of single-pedicled bridge flaps it occurred to me that the employment of a double-pedicled bridge flap from the scalp would meet the case without fear of the blood-supply. By a bridge flap is meant one in which the pedicle lies over healthy skin, is divided from the grafted terminal portion after about ten days, and is then replaced into its original position. The double-bridge flap, though I believe original, is merely the logical development of double-pedicle embedded and single-pedicle bridge flaps, and it combines the advantages of a double blood-supply and of the provision of a flap well distant from the lesion.

In this particular operation, which took place on Sept. 20th, 1917, at the Queen's Hospital, Sidcup, Captain J. L. Aymard and Lieutenant G. C. Birt assisting, in which ether-oil was given by the rectal method (Lieutenant R. Wade), the flap stretched from ear to ear to the other across the vertex and was about 3 inches in width. (See Figs. 4 and 5, Case 1). Before bringing this into position

CASE 2.—(1 and 2) Condition on admission. (3) Adjustable intranasal support carried from a metal cap splint cemented to the upper teeth. (4) Improvement obtained by operation and insertion of nasal splint. (5 and 6) Result of insertion of cartilage graft from rib. Taken three months after operation.

the skin below the buccal opening was raised by incision and dissection and laid on the upper surface of a large osteo-cartilaginous graft from the seventh rib. This measured some 6 inches along its long convex border and was the shape of a boomerang; it included about 1 inch of the bony portion of the rib and was fixed by iron wire into the remains of the jaw, bone to bone on the left side and cartilage to bone on the right, being fixed so that the point of maximum convexity of the cartilage became the prominence of the chin. The large scalp flap was then swung over the face into position so that it covered the upper, lower, and lateral aspects of the new "jaw," and sutured to the surrounding skin edges. The pedicles were cut on the eleventh day and returned to the scalp (Fig. 6, Case 1); the new blood-supply of the grafted portion being satisfactory, there was no question of gangrene.

Many causes operated against asepsis, of which the more obvious were: (1) the length of operation; (2) the difficulty of sealing off the junction of the pedicle and the embedded portion; and (3) the very strong growth of hair on the flap. Discharge appeared at the lower border of the flap on the fifth day, and has continued.

I must own that in planning this operation it was not expected that a good functional result would accrue, but some degree of mastication is yet possible where there was none, and the gain to the patient of having a chin and a full beard is almost certainly permanent. The secondary disability is a bare area on the top of the scalp, which is being epithelialised.

In criticising this procedure I feel it would be better to either insert a piece of metal or celluloid at the time the scalp flap is brought down, to be replaced later by an osteo-cartilaginous graft under more aseptic conditions, or else to embed the graft in two halves in the scalp some six weeks before it is swung down. In this event the graft, at a later stage, could be joined in the middle and to the remains of the jaw.

There still remains the freeing of the lip to be done, which is best achieved by an epithelial inlay as advocated by Esser. The present condition of the case is as shown in Fig. 6 (Case 1), and although there is a discharge it is diminishing, and, in view of past experience, it is reasonable to expect the process to cease and the appearance to be maintained. Later note: Discharge almost ceased.

CASE 2. *Restoration of the nose by dental splint and cartilage graft.*—Wounded on 20/12/16. The condition on admission, nine days later, to the Cambridge Hospital, Aldershot, is shown in Figs. 1 and 2 (Case 2); the anterior part of the septum, with portions of both alæ, having been shot away, a considerable flattening of the nose resulted.

First operation, 15/1/17: The flattened portions having been freed of all their adhesions under chloroform, I inserted the apparatus shown in Fig. 3 (Case 2) (drawn by Professor H. Tonks), made by Captain L. A. B. King and staff. This was continuously worn by the patient for seven weeks and produced a very considerable improvement, as shown in Fig. 4 (Case 2). Figs. 5 and 6 (Case 2) show the later and permanent result of the insertion of a cartilage graft 3 inches in length, taken from the eighth rib, to raise and support the lower part of the nose. The cartilage was inserted in two portions through the columella; the longer portion was pushed in beneath the skin to form the bridge, while a shorter piece was embedded down the columella towards the maxilla so as to support the tip of the nose. Plastic re-suture of the alæ to give symmetrical appearance was carried out at the same operation.

To Captain Kelsey Fry belongs the credit of giving the nasal splint a prolonged trial.

THE LIGHTING OF MOTOR CYCLES.—With the prohibition of the sale of calcium carbide acetylene lamps are out of the question, whilst electric lighting outfits cannot be readily purchased and oil lamps are not ideal for use on a motor cycle. The Auto-Cycle Union will investigate and report upon applications from medical practitioners for calcium carbide, with the approval of the Ministry of Munitions. Permits will be issued under Para. 4 of the Order of Sept. 24th, 1917, and applications will receive consideration within the limits of the supply of carbide available. Medical men should apply to the Secretary, Auto-Cycle Union, 83, Pall Mall, S.W.1, for forms on which to apply for permits.

A FEW NOTES

ON THE TREATMENT OF GUNSHOT WOUNDS OF THE MANDIBLE AND MAXILLA.

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THE work of this department is very varied, but it may be taken roughly that 75 per cent. of the patients admitted have fractured mandibles with or without fracture of the maxilla, a further 10 per cent. have fractures of the maxilla that require dental treatment, and the remaining 15 per cent. are purely plastic cases.

Fracture of the Mandible.

The routine treatment of this injury will now be described. As soon as possible the patient is sent to the radiographic department in order that skiagrams may be taken to demonstrate the situation and extent of the injury to the bone. For this purpose an antero-posterior in addition to a right or left special view is always taken.

In obtaining the antero-posterior view the patient's face is, of course, always next to the photographic plate. A careful examination of such a skiagram will determine any lack of symmetry with regard to the mandible, and will show a break in the continuity of the bone should it be present; the amount of displacement can also be detected with ease. If a fracture of the coronoid process or neck of condyle is suspected it is best to take the skiagram with the mouth open.

When a fracture is present in the regions of the horizontal and ascending rami a lateral view is always necessary, as the rays must be directed as far as possible at right angles to their lateral surface, and in order to obtain precise information care must be taken to avoid in the picture overlapping of the two lateral halves.

It is very important to repeat these lateral views at intervals of a month or six weeks in exactly the same position, so that any change in the position of the fragments can be detected and estimate of the progress determined.

The following points to be noted in the skiagrams thus obtained are: (1) The teeth involved in the fractured area and those likely to be involved at a later period; (2) the amount of bone lost; (3) type of displacement; (4) the presence of foreign bodies, which include not only metal fragments, but displaced teeth.

Having obtained in this way information regarding the relationship of the fracture to the teeth, the question of their extraction is now considered. When the wound is very septic, as is generally the case, free extraction is the rule—that is to say, any tooth which is in the line of fracture or likely to become involved by absorption of the surrounding bone is removed. Lines of fracture are open pathways for the spreading of an infective process, and should they be in proximity to the periodontal membrane a secondary inflammatory condition of the latter is bound to follow in the very area in which it is hoped new bone will be formed. More conservative treatment can be adopted in circumstances where the wound is not likely to be much infected—such as fractures occurring in civil practice, where violence is less extreme when the blow has been inflicted by comparatively blunt objects. Such cases are sometimes met in military practice—horse kick, injuries from dug-out falling in, &c.

Sometimes, however, a tooth is retained on the posterior fragment of the mandible which at first examination would require to be removed, but it must be remembered that it is extremely important to have a molar tooth left for splinting purposes, and the benefit to be gained by retaining it, even for a time, outweighs the septic risks of keeping it. Skiagrams are taken at intervals while patient is under treatment, and the condition of the area around the tooth and the progress of repair are carefully observed.

At the time of extraction of the teeth drainage is always established. A piece of rubber tubing is placed between the ends of the bone and brought into the submaxillary or submental region of the neck. Should the position of the

wound in the soft parts not be suitable for this purpose a fresh counter-opening is made. This procedure is especially useful for middle-line fractures.

The drainage-tubes are left in from 14 to 21 days, being gradually withdrawn after about seven days.

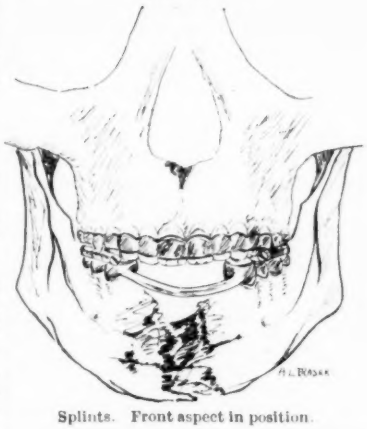
No bone is removed at time of operation, except that which is very loose and obviously necrotic, in the hope that some osteogenetic cells may be still alive and later on contribute to the formation of callus. This is specially noticeable in the symphysis region, where quite small loose pieces of bone form a large amount of callus provided the drainage is adequate.

Impressions of the teeth are now taken for making the splints. This is often a very difficult undertaking, but small shallow trays with the use of plaster-of-Paris will often give satisfaction. I have recently taken my impressions after the patient has had the teeth extracted, and while he is still under the influence of the anæsthetic. In the latter case it is best to use dental composition, as it hardens very quickly.

While the splints are being made the broken fragments of the mandible are put at rest by ligaturing the teeth to the maxilla with grass line and brass ligature wire. The former, which was brought to my notice by Lieutenant H. C. Malleson, R.A.M.C., has proved very useful for this purpose. The one disadvantage is that it is difficult sometimes to pass it between the necessary teeth.

I have overcome this by using a surgeon's curved plastic needle, which can be easily introduced between the necks of the required teeth without injuring the marginal tissues.

FIG. 1.

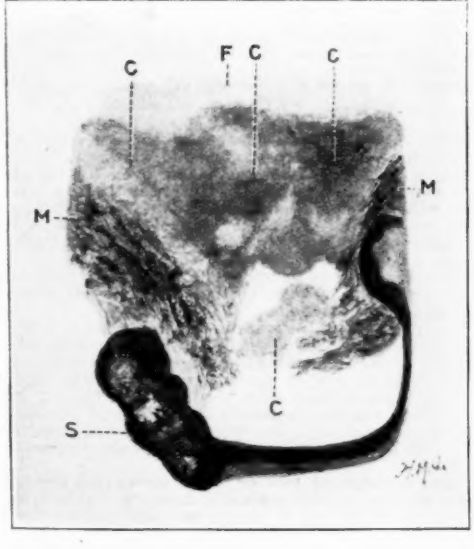


Splints. Front aspect in position.

FIG. 1A.

Splints shown in detail. (Reduced to half size.)

FIG. 2.



Drawing of skiagram of middle fracture of mandible three months after injury. C, callus; F, floor of mouth; M, mandible; S, splint.

At this stage a case is classified into one of three classes: (1) Those cases which should get primary bony union in normal occlusion; (2) those cases in which primary bony union is doubtful; (3) those cases in which it is certain that no functional useful primary union can be got owing to too great a loss of bone.

Class 1. Cases in which primary bony union in normal occlusion is expected.—These cases are splinted into normal occlusion. Upper and lower capped cast splints are most generally used. It is very seldom that a lower splint alone is used even for simple middle line fractures as the front teeth generally have to be extracted. In these cases the fulcrum of the splint is found to be too far back, and in spite of a firm connecting bar, slight movement is present which has been known to account for the non-union of these fractures.

The most common type of splint which is used is shown in Fig. 1. These are retained from two to five months, varying with the progress of the case. The splints are so constructed that it is possible to open the mouth at any time to remove sequestra, &c.

There is one type of fracture which often presents considerable difficulty—i.e., fractures of the symphysis with a

FIG. 3.

fair amount of comminution. It is found on removing a splint after a period of about three months a condition of the fragments exists which on casual examination would lead one to suspect that complete bony union had taken place. On careful examination, however, a slight springiness will sometimes be detected. If this is the case, in my experience it is not likely that the complete consolidation will take place if the splint is removed. This union is really only callus, which is known to be of a plastic nature, and the patient will bite the two lateral fragments inwards in a very short time. This type of case is very difficult to radiograph. The best results have been obtained by Lieutenant H. M. Johnston, R.A.M.C., by the use of small plates of aluminium cassettes placed inside the mouth. The skiagrams thus obtained require very careful reading.

Fig. 2 shows the mass of tissue joining the two ends of the bone is of a homogeneous appearance—that is to say, it consists of callus only. Repeated skiagrams of these cases should be taken until definite bony spicules can be seen running through the homogeneous mass.

Class 2. Fracture of mandible with a fairly large loss of bone; prospect of obtaining primary bony union doubtful.—In these cases the patient must be given every chance of getting primary bony union, and in fractures of the angle the anterior fragment must be swung over to help fill up the gap. Nature also helps by swinging forward the posterior fragment. In middle-line fractures the two sides must be approximated. In these positions the jaws must be splinted for a varying period and repeated skiagrams taken. If large pieces of necrosed bone have exfoliated and no chance of union is observed, the case is then treated as in Class 3. If the case is seen to be progressing favourably the splints are left until some bony union has taken place, by which time, by extracting one or two upper teeth on the affected side, the jaw can be swung back into its normal position. On the other hand, if the jaw has been swung over too far and cannot be swung back the bone is in a better condition for a bone-graft, because the freshly cut ends are preferable to the sclerosed ends of the ununited fragments.

FIG. 4.

Kingsley's splint in position.

Surgically, however, a difficulty may arise in this latter procedure, the mucous membrane of the mouth possibly being perforated whilst stretching the two parts. In such a case the fragments must be separated and brought as far as possible into normal occlusion and the bone-graft operation postponed to a later date.

Middle-line fractures of this class are also interesting, because when the skiagram shows the ends of the bone to be joined together by a homogeneous mass—that is to say, callus—it is possible, owing to its plasticity, to stretch it and bring the fragments into normal occlusion by using the type of splint shown in Fig. 3. This splint was used for a patient who, after three and a half months, had a union by callus only—i.e., it was clinically of a springy nature. The combined splint and expanding apparatus was put on and the callus gradually expanded during a period of six weeks, after which it was kept on as a retention splint for a further month. The result was firm bony union with good occlusion. It will be noticed that the connecting bar of this splint was of a very substantial character.

Class 3. Those cases with too great a loss of bone to get primary union.—The treatment consists in holding the fragments in good position with as little strain as possible on the teeth until bone graft operation is advisable. For this purpose a lower cast tin denture with large lingual flanges is very useful when the loss is in the middle line. Early operative treatment by wiring, plating, &c., has always, in my experience, proved useless.

The following is a summary of the most important points in the treatment of gunshot wounds of the mandible: (1) Getting the patient early; (2) freeing the mouth of all septic teeth and teeth involved or likely to be in the fractured area; (3) establishing good downward drainage as early as possible; (4) not removing any loose bone unless obviously necrotic; (5) reduce displacement as soon as possible, especially the open bite; (6) absolute immobility of the fractured ends for a long period; (7) thorough exposure and removal of sequestra; (8) when the union is thought to be delayed interference by surgical means should be considered; and (9) stimulating the growth of callus by massage and high-frequency treatment.

Fracture of the Maxilla.

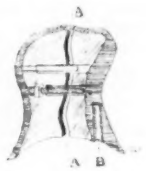
There is only one class of these cases and they are treated with success in the following way: (1) Free extraction of septic teeth and teeth involved in fractured area; (2) early suturing of soft parts when possible; (3) good drainage; (4) leaving all loose bone to exfoliate itself; (5) supporting the maxilla with a vulcanite "Kingsley" splint which has been perforated to assist drainage. The splint is held up by elastics to a head net or plaster-of-Paris bandage around the head. (Fig. 4.) In a very badly fractured maxilla in high position care has to be taken not to press upwards too much in case the optic nerve is pressed upon.

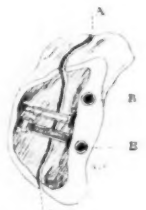
In treating old gunshot wounds of the maxilla numerous difficulties present themselves and various appliances differing in every case with the degree of loss are used. The following is an example:—

The patient was wounded 18.8.16, and was admitted into this hospital 10.3.17. On examination it was found that he had got an old gunshot wound in the face with large loss of the maxilla and nasal structure, and loss of both eyes. The hard palate was entirely lost except for a small part which included the two posterior tuberosities with the intervening part of the palate. Both antra were widely opened owing to the absence of the nasal and anterior walls. The soft tissues of the lip and nose were adherent to the small remaining part of the palate as shown in Fig. 5.

The case was seen by Major H. D. Gillies, R.A.M.C., who decided to free the soft tissues from the small remaining part of the palate. Major Gillies operated; preliminary laryngotomy and anæsthetic given through laryngotomy tube. A knife was inserted behind the upper lip, and the line of attachment of the soft parts both to the hard palate and laterally to the remains of the superior maxilla was divided in a vertical direction until the level of the eye-sockets was reached. The soft tissues were then stretched forward.

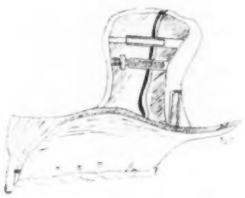
FIG. 6.





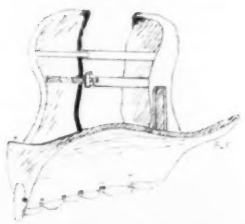
Mould. A—A, line of division of mould. B—B, sockets for split pins on denture. (Reduced to half size.)

FIG. 7.



Mould with denture in position before expansion.

FIG. 8.



New position of mould and denture after expansion.

At this stage the case was taken over by the dental department for the soft parts to be kept in the new position. While still under the anæsthetic dental composition was forced up into the gap made and left to harden. When hardened it was removed and the impression used for making the necessary permanent apparatus. In the meantime another piece of composition was inserted into the gap and left in position to hold the soft parts out while the apparatus was being made.

The type of apparatus made is shown in Figs. 6, 7, 8.

A hollowed-out piece of vulcanite was made to fill the gap. This had a nut and bolt arrangement which enabled the front part to be pushed forward when required after the mould had been divided along the line (A—A, Fig. 6).

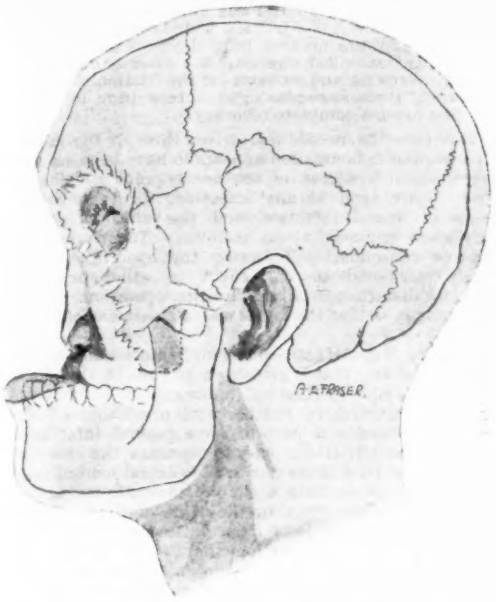
A denture was then attached to this mould by two split pins which fitted into the posterior part of the mould, which had been specially thickened for this purpose (B—B, Fig. 6).

During a period of two or three weeks the upper part of the apparatus was gradually brought forward to the position shown in Fig. 8, which gave the patient the best cosmetic effect.

In order to maintain this position permanently and at the same time to prevent the soft tissues encroaching into the gap the interval was filled up with vulcanite, a procedure which occupied about four hours.

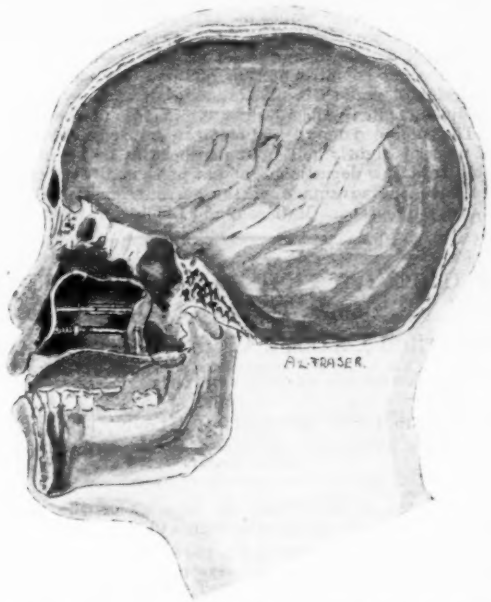
When we attempted to replace the mould we were surprised to find that this was impossible. The scar tissue had contracted so much during the short time that it was necessary to administer nitrous oxide gas and forcibly stretch the soft parts (the apparatus had previously been

FIG. 5.



Shows the portion of maxilla lost and the soft tissues adherent.

FIG. 9.



Mould and denture *in situ* after gap has been filled with vulcanite.

removed twice daily by the patient himself for the purpose of cleaning, and no difficulty had been experienced). The denture was now remade to fit the mould accurately in its new and permanent position. (Fig. 9.) The patient now is able to eat a fair diet and the cosmetic effect is greatly improved. Figs. 10 A and 10 B show the patient before and after operation and dental treatment.

The diagrams accompanying this article have been drawn by Captain A. L. Fraser, dental surgeon. In addition, I should like to acknowledge the great help both in general principles and in mechanical details that I have received from one and all of the staff.

When a group of keen dental men are working for the same end—the benefit of the patient—it is obvious that the work on any one case is the product of ideas of the whole staff. The mechanical work carried out by one dental surgeon in any particular case is the outcome of the general experience of the department both in this present home and as it

FIG. 10 A.

FIG. 10 B.

Before treatment.

After operation and dental treatment.

used to be at the Cambridge Hospital, Aldershot. In this connexion I should like to mention the early work done by Captain L. B. King whilst at Aldershot, and especially the present workers: Captain E. G. Robertson, Captain A. Jupp, Captain E. W. Lowe, and Captain A. L. Fraser.

The general control of the fractured jaw cases, both in their dental and their plastic stages, is under the doubly-qualified medical officers who are in charge of the cases.

The combined dental and medical knowledge of this type of officer is rightly held by the authorities to be indispensable to a jaw department, and at present, in this capacity, we have the advantage of the services of Captain C. F. Rumsey, Lieutenant Malleson, and Lieutenant G. C. Birt.

A CASE OF TRAUMATIC PERICARDITIS DUE TO A NEEDLE.

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AND
J. B. FERGUSON WILSON, M.S. LOND., F.R.C.S. ENG.,
CAPTAIN, R.A.M.C. T.F.; SENIOR ASSISTANT SURGEON, SHEFFIELD ROYAL HOSPITAL.

THIS case is interesting on account of the rarity of accidental wounds of the pericardium in civil life.

A girl aged 12 was admitted to the Sheffield Royal Hospital on August 21st suffering from dyspnœa. Her history was as follows. On the 16th she picked up an old rusty sewing needle which she found in the street and pinned it in the front of her blouse. When she got home she vomited twice and felt poorly. She also had some pain in her chest, and her mother found a mark on the chest, together with the broken end of the needle sticking in the blouse. The child thinks that the needle must have run into her chest whilst she was leaning against a wall, but she did not feel any pain at the time and was quite unaware of what had happened. As her symptoms did not improve she was brought to hospital five days later.

When seen the same evening the child was lying propped up in bed. The respiration was frequent and shallow, alæ nasi dilating; slight pyrexia. She did not complain of pain anywhere, and, in fact, the absence of subjective distress was a striking feature throughout. On examining the chest the cardiac dullness was found much enlarged; it extended for 1½ inches to the right of the sternum and as far as the anterior axillary line to the left; upwards to the first intercostal space. The impulse could not be felt; the heart sounds were very faint. There was a loud double pericardial friction over the sternum and to the left. The point of entry of the needle was visible as a small punctate scar situated at the left edge of the sternum, where it is joined by the lower border of the fourth left costal cartilage. It seemed quite healthy; there was no pus. A radiogram taken from the front showed the portion of needle lying almost in the middle line, a little to the left, at a level corresponding to the site of entry. As seen in this plane it was about ¼ inch long. The plate also showed a large heart shadow, due to the pericardial effusion. The pulse was 120–130.

As the child did not seem in any immediate danger it was agreed not to attempt the removal of the needle until a further radiogram had been taken giving a side view, and then to proceed according to what it showed. On the next day the lateral radiogram showed the needle pointing almost horizontally backwards. It was about ¾ inch long, one half of it being in or alongside the sternum, the remainder projecting into the thorax. The physical signs were the same as on the previous day, and operation was decided upon. As the surface wound seemed to be slightly to the left of the sternum, it was thought that the needle had probably gone through the fourth left space. An incision was therefore made at this level, but no trace of the needle or its track was found. The cartilage of the fifth left rib was then cut through and turned outwards, but still without result. On passing the finger mesially behind the sternum the point of the needle was felt projecting backwards, and by means of a blunt instrument was easily pushed forwards out of the front of the sternum through its channel of entry. The wound was then closed. Neither pericardium nor pleura had been opened.

The child had rather a restless night, with a good deal of cough and dyspnœa; temperature slightly raised. It was not possible to make a full examination of the left chest on the following day owing to the wound and dressings, but the dullness to the right of the sternum had obviously diminished considerably. The friction sounds were also less audible. There was, however, a large extension of dullness up to the left clavicle, and bronchial breathing over the left upper front. On the 24th the child was much better, the cardiac dullness was smaller, the friction sounds were rather more to the left, and the area of lung dullness and bronchial breathing had extended downwards. After this she made rapid improvement, and on Sept. 1st the friction sounds had disappeared; there were also signs of resolution in the left lung. She made a complete recovery.

In this case the needle was driven through the sternum and pericardial inflammation appears to have been set up by the mechanical irritation of the needle-point sticking into the sac rather than to any infection, for there was no evidence of wound infection and the effusion subsided quickly when the needle was removed. The cause of the pneumonic consolidation following the operation may be variously attributed to the effect of ether or to the mechanical disturbance caused by the operation. Its site of origin suggests that the latter was at least a contributing cause.

Remarks by Major HALL.—The chief interest in this case consists in the fact that it gives us a picture of the clinical effects of a simple pericardial inflammation without anything else. Pericarditis, whether with or without effusion, is, as a rule, merely a part of some general infection or fatal disease, and it is not easy to separate the symptoms due to the local from those due to the general morbid condition. In this case we have a simple traumatic irritant, the mechanical scratching by a needle-point of the pericardial walls, and if any organisms were present and played any part in producing inflammation they were, at any rate, introduced directly from without and not from the general blood-stream or from neighbouring diseased areas. It is, in fact, more like a simple laboratory experiment than a pericarditis of disease such as we are accustomed to meet with in clinical work. The general impression which it gives is that such a simple pericardial inflammation is a much less serious and formidable condition than one would be led by previous experience to expect.

The cardinal symptoms of a pericarditis are (1) pain, usually over or near the præcordium, sometimes very severe; (2) dyspnœa, and other symptoms of cardiac embarrassment; and (3) nervous complications, restlessness, insomnia, vomiting, and, at times, delirium, varying in degree, and at times associated with convulsions or ending in coma. In some cases it has been noted that some or even all of these symptoms are slight or even absent, and various reasons have been given to explain this anomaly. If one may judge by the case here recorded it seems rather that mildness or absence of severe symptoms is the natural history of a pericardial inflammation alone, and that the severe symptoms often observed are due not to the pericarditis but to other associated troubles.

In this case pain over the præcordium or elsewhere was absent throughout. There was certainly none during the child's stay in hospital, and, according to her own repeated statement, there was none previously. Cases without pain have been often recorded, and one knows that this is particularly so in young children; also that in cases of pericarditis occurring as a terminal or pre-terminal event in chronic disease the actual existence of this complication has only been discovered at autopsy. This absence of pain is rather surprising when one thinks of the intensity of pain so commonly present in similar affections of the neighbouring pleura. Possibly there is a mechanical explanation of this. Even the pain of pleurisy varies considerably, according to the part of the membrane affected, and it is a common experience that an apical pneumonia, with its attendant pleurisy, is less painful than one at the base, whilst a diaphragmatic pleurisy is exceedingly painful. This difference depends upon the extent to which the acutely inflamed area can be kept at rest, and this is greater the further the trouble is from the more mobile lower parts of the chest, where every deep breath, every cough, and every contraction of the trunk muscles involves movement of the affected parts. That most apical pleurisies must be painless or nearly so is shown by the large number of cadavers in which extensive apical adhesions are found, and yet there is no record in the history of the case of any corresponding attacks of pain in this region having occurred during life. In the pericardium the movements of the heart are limited, and not capable of much variation in extent, so long as the patient is at rest, nor do respiratory movements of the chest

wall alter the position of the sac to any great extent. Thus, on the whole, the factor which brings about pain in a pleurisy—namely, increased movement—occurs less in pericarditis. It may therefore be assumed that in a simple pericardial inflammation, due to mechanical causes, and with no complications, pain is not an essential characteristic.

The second cardinal symptom, described in the textbooks, is dyspnœa with cardiac embarrassment. This is usually explained on mechanical grounds, and seems natural and reasonable. As the fluid increases in amount the pressure on the heart increases, and the compression of the great afferent vessels at the back and lower part of the sac must also become greater. But it has been noted that in some cases the sac can contain extremely large quantities of fluid without very much inconvenience. This has been explained by saying that the amount which the sac can contain without causing distress depends on the rate at which the fluid accumulates; if it is a slow and gradual process the sac has time to become distended, while if it is formed quickly the distress is urgent. Everything depends upon how the terms "slow" and "quick" in this sense are interpreted. What is a quick formation of fluid in a pericarditis? Pathologists state that the first or hyperæmic stage lasts from 24 to 48 hours, and an effusion that reaches any size in three or four days after that is probably as quickly formed as ever occurs. In this patient the exact time of onset of trauma was August 16th, and on the 21st, the sixth day of the illness, the physical signs showed an extensive effusion, which was confirmed by the radiogram shadow. In spite of this rapidly formed large effusion, the effect on the heart was extremely slight. There was no cyanosis, no real orthopnœa, nothing but a slight increase in the rate of breathing, with some dilatation of the alæ nasi. How far, and in what manner, a pericardial effusion under ordinary circumstances does mechanically impede the heart beat is a point upon which varying views have from time to time been expressed. Such action as it may have must be chiefly upon the thin walls of the auricles and their supply vessels, and must take the form of preventing expansion. If at any single heart beat the organ can attain a certain size, it does not seem possible for any outside squeeze to stop it from emptying itself, and if mechanical factors play any important part in creating cardiac difficulty it must be in gradually squeezing the chambers which feed the ventricles. The often-recorded anomaly that a very large effusion may cause but little obvious discomfort and the complete absence of any cardiac disturbance in this case make one wonder whether the mechanical factor of the effusion in many cases of great distress has not been exaggerated, and that the distress is really due as much, if not even more, to other effects on the heart muscle of the poison which is causing the disease.

When one considers the nervous symptoms attributed to a pericardial inflammation it is evident from their complete absence in this case that they also are no necessary adjunct of a simple acute pericarditis, but are rather due to the general toxæmia, and indicate, as does the invasion of the pericardium, a severe infection. This child seemed in no way embarrassed by the chest symptoms, the nervous system being entirely normal, so that it was difficult to look upon her as having an acute pericardial effusion at all. So much was this so that it was thought she must be one of those placid happy persons who are disturbed neither by pain nor fear. That this was not so, and that when pain or discomfort was really present she showed it in the usual way was made clear some days after the operation, when a small stitch abscess required slight attention and she made a great fuss about it. It has been said that dry pericarditis does not kill, though it frequently occurs in dying patients; is it not also possible that pericarditis has acquired its bad name largely from keeping bad company?

Sheffield.

ROYAL INSTITUTION.—At a general meeting of the members of the Royal Institution, Sir James Crichton-Browne, treasurer, announced that Dr. Arthur Keith had been appointed Fullerian professor of physiology.

THE Lord Chancellor has appointed Mr. M. J. Nolan, resident medical superintendent, Down District Asylum, as consulting Visitor in Lunacy in the place of the late Lieutenant-Colonel Graham.

DIAPHRAGMATIC HERNIA:

WITH REPORT OF A CASE OF THE ACQUIRED CONDITION.

BY L. M. MURRAY, M.D., C.M. McGILL,
MAJOR, C.A.M.C.; KING'S CANADIAN RED CROSS HOSPITAL, BUSHEY PARK;
AND
J. D. MORGAN, B.A. CANTAB., M.D., C.M. McGILL,
MAJOR, C.A.M.C.; RADIOGRAPHER, GRANVILLE CANADIAN SPECIAL HOSPITAL, RAMSGATE.

DIAPHRAGMATIC hernia is stated to be the most common form of the internal hernia, yet it was found only three times in 13 years at the London Hospital in 699 cases of intestinal obstruction.[1] According to Scudder, a thousand cases of diaphragmatic hernia have been reported,[2] but only a comparatively small number during life. In 650 cases reviewed by Giffin, of the Mayo Clinic,[3] only 15 were reported during life. Probably a larger proportion are discovered during life now that radiographic and fluoroscopic examinations are so frequently made in abdominal conditions.

We have seen only one case reported as a war casualty,[4] although the frequency with which men in the vicinity of bursting shells are buried under a mass of earth and débris makes the accident highly probable, and should be thought of in obscure abdominal or chest conditions.

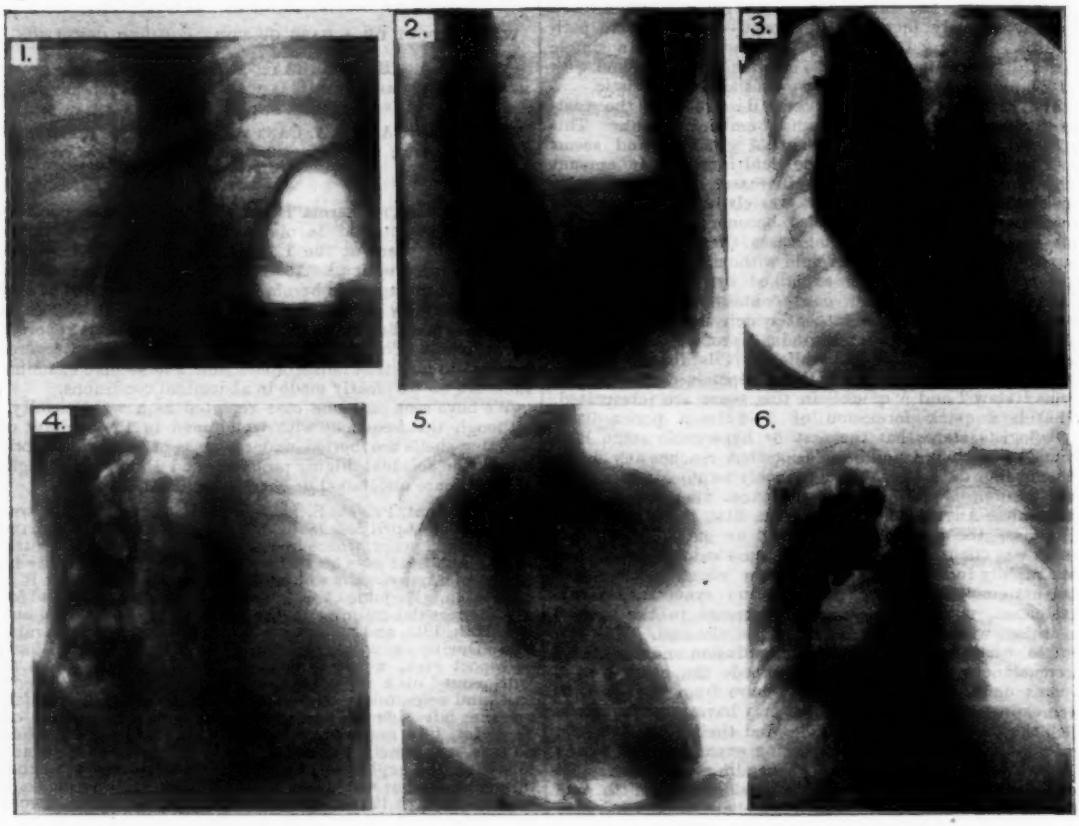
The patient, Private S. M., age 34, born in England, was admitted on April 3rd, 1917. He has been living in Canada for nearly 12 years, where he worked as an oiler in an electric light plant. He says he was always in good health before he joined the Army. His weight on enlisting was 155 lb.; it is now 122 lb. He joined the C.E.F. on May 19th, 1915, and for five months did training in Canada. He came to England Oct. 20th, 1915, and underwent another eight months' training. During the whole of these 13 months he did not have to report sick, never missed a parade, nor did he ever "drop-out" on a route march. He frequently played football, and remembers that his heart beats were always felt on the left side of the chest. He went to France on Sept. 1st, 1916, and was quite well till Oct. 24th, 1916, when he was completely buried by the caving in of a trench following the explosion of a shell. He was dug out almost immediately, but was quite unable to stand up as his back "felt as though it had been broken," and he had a severe pain which was referred to the region of the eighth and ninth dorsal vertebræ. He was then carried on a stretcher to the Courcelette dressing station, where he was given a hypodermic of morphia and sent to a casualty clearing station and then to No. —— General Hospital, Rouen; here he remained for over a month. During his stay in Rouen he was examined with the X rays (screened), but no bismuth meals given. It was evidently concluded that he had a hæmothorax (cf. Fig. 1), as his left chest was aspirated twice. On the first occasion some bloody fluid was obtained, but nothing was found on the second. He was then evacuated to England and on April 3rd, 1917, to the special clinic.

Physical examination.—A sparely-built man, colour good, but of delicate appearance, with very flabby muscles. He is able to walk five miles without distress, but any sudden exertion causes marked dyspnœa. He has no symptoms while remaining quiet.

Chest.—Left shoulder habitually carried higher than the right. Compensatory curve of the spine to the left. On straightening his shoulders the spinal curvature disappears. *Chest measurement.*—Expiration 32 inches. Inspiration 33½ inches. Right side, at the nipple level, 16½ inches; left side, 16½ inches. On inspiration the excursion of the right chest is slightly greater than the left. Tactile and vocal fremitus is much diminished on the left, below the fourth rib in front, and the angle of the scapula behind. Percussion in front, right side, resonant. Left side, resonance, to the third rib in front and midscapular region behind. Below these points a dull tympany (the type of tympany differed with various examinations).

Auscultation.—Over the right chest nothing abnormal to be heard. Left chest, breath sounds were to be heard to some extent over the whole left side, diminished, below the third rib in front, and midscapular region behind. Over this area a metallic tinkling could be heard. (This was the sign which first led us to suspect the presence of the stomach in the left chest.) Coin test present, and made out best at different points of the left chest on different examinations. On some occasions it could not be demonstrated.

Heart.—Apex beat in the fifth right interspace, 2½ inches from the right border of the sternum. A diastolic murmur was noticed at the second right costal cartilage and down the right border of the sternum. The intensity of this murmur varied with position, being more evident with standing up than on lying down. It also varied on different days, and on



1.—Patient standing. Plate anterior. Shows stomach well up into left side of thorax. Heart displaced to right. Level of diaphragm on right side is clearly shown. Free fluid level in stomach is that of ordinary meal taken a few hours before X ray examination.

2.—Patient standing. Plate anterior. Obtained a few minutes after bismuth meal had been given. Shows level of diaphragm, right side; stomach well up into left thorax; bismuth meal in lower part of the picture—i.e., in the cardiac portion of the stomach (the meal was seen to enter at this end); and the less dense shadow of ordinary meal lying above the test meal.

3.—Patient lying down. Plate posterior. The bismuth has spread out, showing the upper level of the stomach to be in region of second rib. The × indicates position of left nipple. Along the outer edge of the picture may be seen a light shadow, caused by gas-filled gut.

4.—Patient lying down. Plate posterior. Obtained some four hours p.c. At about the middle point of the picture a shadow may be seen, caused by bismuth which still remains in the portion of the stomach which passes through the opening in the diaphragm. The level of the latter is distinctly seen on the right side. A large part of the left thorax is seen to be occupied by intestines.

5.—Patient lying down. Plate posterior. Obtained about 13 hours p.c. The level of the diaphragm can be seen. The bismuth in the transverse colon is just passing through opening in the diaphragm.

6.—Patient lying down. Plate posterior. Bismuth enema. Showing large intestine in the left thoracic cavity.

some examinations was absent. Blood pressure: Systolic, 124 mm.; diastolic, 90 mm.

The spleen could not be percussed in its ordinary position.

The patient was examined by Colonel F. G. Finley, C.A.M.C., and one of us, and diaphragmatic hernia suspected. He was then given a bismuth meal and X rayed at the Canadian Hospital, Taplow, and the diagnosis of diaphragmatic hernia confirmed. Later he was sent to Ramsgate for further examination. The radiograms illustrating this report were obtained during his stay at the Granville Hospital.

A hernia may occur through the diaphragm either on its right or left side. When on the right side it usually consists of a knob of liver tissue. On the left side the contents are nearly always stomach; and then, in order of frequency, the transverse colon, the omentum, the small intestine, the spleen, the left lobe of the liver, the pancreas, and the left kidney. In addition, lung tissue may make its way downward through a deficiency in the diaphragm.[6]

Diaphragmatic herniæ are either congenital or acquired. Grasser and Thoma collected 433 cases, of which 232 were congenital and 181 acquired. Many of the congenital cases have been in stillborn babies; those who live usually go through life without symptoms, or until the onset of intestinal obstruction, when the diagnosis of the condition is made at operation or on the post-mortem table. The acquired cases are due to some trauma, such as a stab or gunshot wound,[5] or to indirect violence, causing an increase in the intra-abdominal pressure with resulting rupture of the diaphragm. The symptoms complained of in almost all of the reported cases have been dyspnœa, pain, or some indefinite gastric complaint, in some cases resembling gallstones or ulcer of the stomach.

In the diagnosis of diaphragmatic hernia the most important evidence is to be found in: 1. Displacement of the heart to the right. This was evident to some degree in all of the cases reviewed. 2. Metallic tinkling heard high up in the chest, having relation to the peristaltic movements of the stomach, and not especially corresponding in time to the respiratory movements. 3. Tympany of some degree high up in the left chest. 4. Absence over the left chest of the dull note indicating fluid, or of the hyper-resonant note of pneumothorax.

References.—1. Contributions to Abdominal Surgery, Barnard. 2. Diaphragmatic Hernia, G. Brown Miller, American Journal of Obstetrics, 1916. 3. Annals of Surgery, 1912. 4. Diaphragmatic Hernia following a Bullet Wound, Major D'Oyle Grange, R.A.M.C., British Journal of Surgery, April, 1917. 5. Hernie Diaphragmatique Congenitale, Perforation par Eclat d'Obus de l'Estomac hernié dans la Cavité Thoracique Gauche, Presse Médicale, 27 Mars, 1917. 6. Prolapse of Lung through a Deficiency in the Anterior Portion of the Diaphragm, J. N. Kilner, THE LANCET, 1915, ii., 1247.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Discussion on Surgical and Dental Treatment of Severe Facial Injuries.

A MEETING of this society was held on Dec. 3rd, Sir ST CLAIR THOMSON, the President, being in the chair, when papers were read on Surgical and Dental Treatment of Severe Facial Injuries. Major H. D. GILLIES'S paper appears in full on p. 850, and that of Captain KELSEY FRY on p. 852.

Mr. PERCIVAL P. COLE said that from the point of view of function the bony lesion was of more importance than the injury to the soft tissues, and its efficient treatment should consequently hold first place. Primary suture should not be undertaken when complicated by an associated fracture, unless the fracture could be dealt with at the same time. It was better to wait until all sepsis had disappeared and the wound was soundly healed before undertaking the necessary operative measures. The importance of cicatricial contraction was in direct proportion to its crippling effect on movement. Treatment was directed firstly to the prevention, and secondly to the rectification of such limiting effects. In the case of a cicatrising wound threatening the movements of any particular joint, it was the surgeon's endeavour to maintain the joint in that position which would most effectually conserve the movement whose limitation was threatened. In the case of opening the mouth this could be prevented by maintaining the jaws in a position of open bite. With regard to operative procedures, he said that the introduction of fresh tissue was frequently called for, and for that the use of doubly epithelialised flaps was indicated. Where there was a large demand for mucous membrane, skin made an admirable substitute, its texture was suitable, and its extent unlimited. The method of "bringing the parts together" was unsatisfactory, and should be abandoned. Pictures were then shown demonstrating the various forms of flaps used. In one case the patient was very hairy, whilst in another the flap was taken from the scalp. In these cases depilation by radiations was carried out very successfully, and Mr. Cole thought that facilities for treatment by this method should be provided in the case of any jaw centre or hospital.

Reviews and Notices of Books.

1. *Home Care of Consumptives.* By ROY L. FRENCH, M.A., former Secretary, Kentucky Tuberculosis Commission. London and New York: G. P. Putnam's Sons. 1916. Pp. 224. Price 5*s.* net.
2. *The Tuberculosis Nurse: Her Functions and Her Qualifications.* By ELLEN N. LA MOTTE. Introduction by LOUIS HAMMAN, M.D. Same Publishers as above. 1915. Pp. 392. Price $1.50.

1. THE author of this book on the home care of consumptives, who for years has been taking part in the educational and executive campaign against tuberculosis, has collected a large amount of information which he presents in the form of simple aphorisms and eminently sane advice. The illustrations of handy and cheap porches and shelters are most useful. The author insists throughout the book on the need at every stage of seeking the doctor's advice and—taking it. On the subject of marriage and parenthood, for example, he writes: "If either party to the agreement is in bad health, the relationship should not be incurred until the two people have had a full and frank discussion of the entire matter between themselves, and with a competent doctor. All three had better use pretty plain English." The book includes a useful section on foods and their preparation.

2. Miss La Motte brings to her subject the experience gained first as a nurse and later as an organiser and director of the Tuberculosis Division of the Baltimore Health Department. During many years she has, to use her own words, "walked into, and backed out of, many blind alleys ..... and acquired wisdom through the loss of infinite time, effort and money." The losses, though large, have been repaid if the yield, in this book, of shrewd observation, kindly philosophy, and common sense have their effect. Miss La Motte conducts the prospective tuberculosis nurse through a maze of detail, stipulating from the outset that the aspirant to this work must possess health, culture, and a whole string of other gifts. And they are all evidently needed, if the tuberculosis nurse is, as according to this book she must be, the guide, philosopher, and friend of the consumptive from his first sneeze to his last cough. As a matter of fact, the problems with which the nurse has to grapple in Baltimore appear to be precisely the same as those to be solved in England, whether they be the relations of nurse to doctor, to patient, to real philanthropists, or to mere busy-bodies. Consequently this book should prove as valuable on one side of the Atlantic as the other, and any nurse who has read, marked, and learned it from cover to cover should be well on her way to master the subject. We do not, however, find Miss La Motte a completely sound guide. Though she discloses no great practical knowledge of sanatoriums and their methods, she "crabs" this branch of tuberculosis work, and, speaking of the sanatorium, declares (p. 209): "We could fight quite as successfully without it—possibly better, since the money devoted to the upkeep of these very costly institutions could then be diverted to more radical purposes." Miss La Motte is hardly fair to the nurse who accepts her sweeping verdict as orthodox and unchallenged.

Congenital Word-Blindness. By JAMES HINSHELWOOD, M.A., M D. Glasg., late Surgeon to the Glasgow Eye Infirmary, &c. London: H. K. Lewis and Co. 1917. Pp. 112. Price 4*s.* net.

Dr. Hinshelwood has collected in book form various studies and observations made over a number of years in a subject to which he has devoted much attention and with which his work has helped to familiarise the practitioner. He cites in some detail various cases of congenital word-blindness that have come under his notice, in one of which there is a report of the pathological condition. The proposal is made to distinguish three groups of the affection—viz., (1) occurring more or less by itself; (2) in association with mental defect; (3) of milder degree such as is said to be common in elementary schools, being little more than a deficient aptitude. To these groups it is suggested that the terms congenital word-blindness, congenital alexia, and congenital dyslexia, respectively, should be applied. It is in a matter of this kind that the expert neurologist is unable to follow the author's contention, for these proposed terms are distinctions without a difference. There is no attempt in the book to bring the treatment of the subject into line with recent work on aphasia; agnosia, of which congenital word-blindness is but a part, is not, apparently, mentioned. For the busy practitioner, however, it serves a useful purpose in directing his notice to a not infrequent condition which may be at first rather puzzling. The chapter on treatment contains much useful and practical advice.

Collected Papers on Analytical Psychology. By C. G. JUNG, M.D., LL.D., formerly of the University of Zurich. Authorised translation by Dr. CONSTANCE E. LONG. Second edition. 1917. Pp. 492. Price 15*s.* net.

WE reviewed at length the first edition of this collection when it appeared two years ago. Two chapters are now added in which Dr. Jung develops further his ideas of introversion and extroversion. In his foreword to these new chapters the author applies his doctrines to the tragedy of world warfare. He says:—

> The psychological events that accompany the present war—the incredible brutalisation of public opinion, the epidemic of mutual calumnies, the unsuspected mania for destruction, the unexampled flood of mendacity, and man's incapacity to arrest the bloody demon—are they not, one and all, better adapted than anything else, to force obtrusively the problem of the chaotic unconscious—which slumbers uneasily beneath the ordered world of consciousness—before the eyes of every thinking individual?

The psychology of warfare is undoubtedly a subject of absorbing interest which will claim the attention of the keenest minds for many years to come, but we do not know what share the rather facile views of the "psycho-analysts" will have in its solution.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

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WEDNESDAY, NOV. 28TH.

THE Council resumed its sittings, Sir DONALD MACALISTER, the President, being in the chair.

Penal Cases.

The Council proceeded to consider penal cases.

The first two cases to be considered were adjourned from previous sessions, and as both practitioners could produce a good record in the intervals no penal action was taken.

In the next case the Council adjudged James George Silver Jamieson, M.D. Edin., to have been guilty of infamous conduct in a professional respect in that he had been convicted in the High Court of Justice of adultery with a patient, and directed the erasion of his name from the Medical Register.

The next case was that of Ernest Wardman-Wilbourne, L.R.C.P. Edin., L.R.C.S. Edin. Evidence having been given of a conviction at the Nottingham Assizes for an offence against a woman, his name was removed from the Register.

The Council then took the case of Reginald Nitch Smith, M.R.C.S. Eng. 1894; L.R.C.P. Lond. 1894, who had been summoned to appear before the Council on the following charge:—

"That being a registered medical practitioner you abused your position: (1) By selling to Mrs. —— at exorbitant prices, at frequent intervals, and otherwise than as a medicine in the course of your treatment of her, large quantities of a narcotic toxicant drug named heroin, and knowing that she had formed the drug habit continued so to supply her to her moral and physical detriment: (2) By selling to the said Mrs. —— the said drug at exorbitant prices and at frequent intervals for an officer and men, members of his Majesty's Forces, contrary to Regulation 40 of the Defence of the Realm Regulations, and of the Order of the Army Council, dated May 11th, 1916. And that in relation thereto you have been guilty of infamous conduct in a professional respect."

Mr. Nitch Smith attended, and was represented by Mr. Colam, K.C., and Mr. Elsley Zeitlyn (instructed by Messrs. Smith and Hudson, solicitors).

The complainant was represented by Mr. C. F. Gill, K.C. (instructed by Messrs. Simmons and Simmons, solicitors).

Mr. GILL, in opening the case for the complainant, said that the woman being supplied with drugs by a medical man at one end of Bond-street had, under their influence, gone to the other end to steal jewellery. It was ordered by the judge at the Central Criminal Court that the action of Mr. Nitch Smith in supplying the drugs should be brought to the knowledge of the General Medical Council. The evidence showed that from January last down to her arrest in July last Mr. Nitch Smith had supplied the woman with tubes of the drug, that she had paid him by cheque, and that she frequently sent messengers for a supply.

Mr. NITCH SMITH, called on his own behalf, stated that he had practised for 18 years in New Bond-street. The patient had told him, he asserted, that she had been taking heroin when on war work in France, and that on account of the restrictions in England she could not obtain it without a medical man's certificate. She asked him to prescribe for her on two or three occasions, and then she asked him to obtain the drugs for her, which he did. She told him that she was sending some of the drug to France. He saw her 18 or 20 times, and observed nothing to suggest that the drug was acting in any way detrimentally to her system.

THURSDAY, NOV. 29TH.

Penal Cases.

The hearing of the case against Mr. Reginald Nitch Smith was resumed.

Mr. NITCH SMITH, in cross examination, maintained that he had not examined the cheques which were paid into the bank, nor taken account of them.

Re-examined by Mr. COLAM, witness said that he did not know that his attendant was supplying the drug to the woman. He had been ill for two years and had been attended by various medical men. His attendant would open any letter which came to him unless it was marked "Private" or "Personal."

Miss MARGARET HALL, attendant at Mr. Nitch Smith's rooms, in evidence said that she had acted in that capacity for 12 years, and that on many occasions she gave the patient the drug unknown to Mr. Nitch Smith.

Mr. Nitch Smith's name was erased from the Medical Register.

Two more penal cases were heard during the day, but neither practitioner was removed from the Register. In one of these cases, where medical certificates had been given irregularly, the President warned the doctor of the serious nature of his offence, whilst postponing judgment till the May session of the Council.

FRIDAY, NOV. 30TH.

The Council considered the case of Bertie Cecil Eskell, registered as of 26, Zealand-road, Bristol, M.R.C.S. Eng. 1910, L.R.C.P. Lond. 1910, who had been summoned to appear before the Council on the following charge:—

"That being a registered medical practitioner you abused your position by committing adultery with Mrs. Kathleen Margaret Dobson Mercer Adam, with whom and whose husband you stood in professional relationship.

And that in relation thereto you have been guilty of infamous conduct in a professional respect."

The complainant was Mr. John Bucknall Mercer Adam, who was represented by Mr. Holman Gregory, K.C., and Mr. Horace Rowlands (instructed by Messrs. Routh, Stacey, and Castle).

Captain Bertie Cecil Eskell, who is serving in the Royal Army Medical Corps, attended, and was also represented by Mr. R. W. Turner (instructed by Messrs. Hempsons).

Mr. HORACE ROWLANDS said that the complainant was a deputy conservator of woods and forests in Burmah. He met Captain Eskell, or as he then was Lieutenant Eskell, in the train proceeding up country from Rangoon. They found that they had attended the same school. Mr. Mercer Adam asked Lieutenant Eskell to call at his house, as he was going to the hospital at the place where Mr. Mercer Adam resided. Lieutenant Eskell had been invalided. He afterwards stayed at the complainant's house, where he met Mrs. Mercer Adam, but subseqently he went into cantonments. In June Mr. Mercer Adam broke down in health and Lieutenant Eskell ordered him to bed for a rest of a fortnight. He had also treated Mrs. Mercer Adam for troubles, and in that way counsel submitted he had acted as a medical practitioner. Mrs. Mercer Adam became pregnant. In November, 1916, Lieutenant Eskell was recalled, and counsel stated that he pressed his view that she should go to England for confinement. At Rangoon Lieutenant Eskell arranged that a medical practitioner, Lieutenant-Colonel Barry, should see the patient in consultation. He confirmed Lieutenant Eskell's opinion. Lieutenant Eskell met the lady in England, and she never went, as it had been arranged, to her husband's people. Since then counsel stated that she had lived with Lieutenant Eskell.

Mr. MERCER ADAM gave evidence. He said that when Lieutenant Eskell was living in his house a second time he treated him for a breakdown. His wife suffered from nervous attacks and Lieutenant Eskell treated her. When he asked him to treat her he (Lieutenant Eskell) suggested hypnotism. When his wife became pregnant Lieutenant Eskell advised him to send her to England.

Mr. ROWLANDS: Did you have to pay any charges to Dr. Eskell?

Mr. MERCER ADAM: I pressed him to take fees, but he refused.

In bringing this complaint in July last did you frame it to break Captain Eskell?—I considered that it was a public duty. I hoped also to save my wife from him.

Dr. E. C. ROBERTSON-FULLERTON was called as a witness by Captain Eskell. He stated that he had attended Mrs. Mercer Adam on the occasion of her confinement in this country. His opinion was that it was very undesirable that she should have been confined in India.

Captain BERTIE CECIL ESKELL also gave evidence. He stated that he had been previously in practice in Bristol, but he joined the Army in 1915. He had gone to Mr. Mercer Adam's house as a guest. He was continually there, and Mr. Mercer Adam knew it. He was not there as a medical man. A medical man staying at a house was frequently asked things. He admitted that he had formed an affection for Mrs. Mercer Adam, but the decision that she should go to England was taken on the advice of a medical man in Rangoon and not on his advice. Her husband knew that he was fond of Mrs. Mercer Adam. He admitted that misconduct had taken place, but he denied that he had occupied the position of a medical man towards Mr. and Mrs. Mercer Adam. There was never any mention of fees. He denied also that there was anything in the story of hypnotism. He admitted writing to Mr. Mercer Adam from England telling him that Mrs. Mercer Adam and he had an undying love for each other, and also that the expected child was his.

The Council adjourned.

SATURDAY, DEC. 1ST.

Penal Case.

The Council proceeded with the hearing of the case against Captain Bertie Cecil Eskell.

Mrs. MERCER ADAM, the wife of the complainant, gave evidence. She stated that Captain Eskell had been taken to her house in Burmah as an invalid. She did not want him. She always had a separate room from her husband, with

whom she did not agree. He was a very morose man and had fits in which he threw her down several times. Her husband told her to nurse Captain Eskell and he placed a mattress by the side of the Captain's bed for her to sit on.

Mr. R. W. TURNER: It is said that you were hypnotised by Captain Eskell.

Mrs. MERCER ADAM: I do not believe in hypnotism. When she saw her husband in London he told her that if she did not go back to him in half an hour he would go to the General Medical Council to break Captain Eskell and break her. She admitted that Captain Eskell was the father of her child, but she denied that he was ever her medical adviser.

Cross examined by Mr. HOLMAN GREGORY, K.C., Mrs. MERCER ADAM maintained that Captain Eskell never treated her in his capacity as a medical man.

The PRESIDENT announced that the Council having adjudged Captain Bertie Cecil Eskell to have been guilty of infamous conduct in a professional respect had directed the Registrar to erase from the Medical Register the name of Bertie Cecil Eskell.

Dental Representation.

The PRESIDENT announced that a letter had been received from the Privy Council in regard to the resolution dealing with the representation of the dental profession on the General Medical Council. It appeared to the Lord President that the proposal required legislation, for which at present there was no adequate opportunity.

Entrance Examinations.

Dr. MACKAY submitted a report by the Education Committee upon examinations in secondary schools in England. This report stated that discussion of matters connected with entrance examinations had been postponed because it was expected that important changes were contemplated by the Board of Education.

It was further stated that a new Board of Examiners was created and a new system of examination tests established in September last. Should the scheme realise the expectations of those who, after much careful study, had developed and matured it, there could be no doubt that the complicated problem with which the Council, in dealing with the preliminary education of the student, had been confronted in the past, would be profoundly modified in the immediate future. Meanwhile, the Committee would advise that, at present, and until the new Examination Board had had time to complete the reorganisation with which it was charged, no further action with reference to the conditions of the examination in general knowledge be taken by the Council.

The report dealt at some length with the multiplicity of entrance examinations required by various professional bodies in England and the lack of a school-leaving certificate such as obtained in Scotland. Under the new arrangements all examinations to which the pupils of State-aided secondary schools were submitted would be under the control of a committee of experts representative in the broadest sense of purely educational interests. The "Secondary Schools Examination Council," which had been established, included representatives of all the Universities, of the managing bodies of the State-aided schools, and of the teachers. The examinations would be conducted by the Universities under the supervision of the Examination Council. There would be two examinations:—(1) The "Schools Examination," suitable for pupils of 16, and qualifying for University matriculation if passed with credit; and (2) the "Higher Schools Examination," adapted for pupils of about 18 years of age. Each school might be examined on its own syllabus; pupils would be put forward in classes rather than individually; in doubtful cases the school record would be taken into account; and the subjects included in the "pass" would be endorsed upon the certificate. Admission to the examination would be in the majority of instances by way of a definite period of instruction in a secondary school, but arrangements would be made for the inclusion of those who approached by other than the usual channels. The success of the scheme demanded the coöperation of the Universities and the professional bodies with the Board of Education, not only by the acceptance of the new certificates, but also by the refusal to recognise substitute examinations not approved by the Examination Council, which might tempt the pupil to curtail the school course. For the first time definite standards of examination for pupils at different ages were about to be established and it would be incumbent upon all who were concerned in the progress of education to assist in maintaining these. The great advantage which the scheme offered to the country by permitting the further development of school and university to take place *pari passu*, could only be realised through the avoidance of conflict of interest between the two grades of educational institutions and through the grant to the schools of complete freedom from external influences inimical to their true teaching work. It seemed to be certain that in the near future all the general entrance examinations in the country which were conducted by, or on behalf of, the Universities would be coördinated and classified, and it was to be hoped that those of the College of Preceptors, the only examining body of consequence not associated with any of the universities, would be included in the classification. If this were done, the gradual advance of the standard of the entrance examination in medicine, which had been for long an object of the General Medical Council, should now present no difficulty, as it would be possible to carry it out in strict harmony with the educational progress of the country. It was, therefore, of supreme importance that the Council should be maintained in close touch with the Board of Education and the "Secondary Schools Examination Council." It would probably be found of advantage, however, to grant to the Students' Registration Committee even a greater measure of freedom than it had exercised in the past in dealing with the educational qualifications of candidates who were above the school age.

It was at first the intention of the Education Board that a "Standing Committee" of Representatives of the Professional Bodies should be formed, and that one member of this Committee should have a place upon the "Secondary Schools Examination Council." These particular proposals were submitted to a conference of representatives of the professional bodies held in London on July 24th, and attended on behalf of the Education Committee of the General Medical Council by Dr. Norman Moore and Sir Francis Champneys. Influenced by the views expressed at the conference, the Board subsequently withdrew the proposal to grant representation upon the Examination Council to the suggested "Standing Committee of the Professional Bodies." There remained, however, for settlement the question as to whether or not any good result was likely to arise from the formation of a committee representing interests and aims so widely divergent as those of the bodies which had been grouped together undoubtedly were. It would be seen that the delegates of the General Medical Council were of opinion that the purposes of the Council would be better served by direct communication with the educational authority than they could be were approach to be made through the suggested "Standing Committee." The Education Committee strongly endorsed this opinion.

Dr. Mackay said that this was the only report coming from the Education Committee this year on which he had any remarks to make. There was another report on the question of the compulsory inclusion of Latin in the preliminary examination in general knowledge, in which it was stated that in examinations of the junior order and open to pupils of 16 years and upwards Latin should continue to be regarded as a requirement. In this respect the committee was not recommending the Council that anything should be done at the present time. But the report as to examinations in secondary schools in England dealt with matters which were of great importance. The subject had again and again come under the notice of the Council. The work of the secondary schools had been greatly hampered in recent years by the multiplicity of examinations. The steps which the report detailed represented a prospect of advance and progress in education. In conclusion, he moved the adoption of the following recommendation:—

That as the professional bodies which demand an entrance examination are widely divergent in their aims, the Council is of opinion that they cannot be combined in a Joint Standing Committee, which might reasonably be expected to take united action. On the other hand, the Council would welcome the privilege of conference from time to time, as occasion arises, with the Education Board or the Secondary Schools Examination Committee.

Sir A. CHANCE seconded, and the recommendation was adopted without discussion.

Dr. MACKAY also moved the adoption of a recommendation to the effect:—

That the Council postpone the discussion of the subjects to be included in the junior examinations in general education until the opportunity has been afforded of observing the effects of the new examination scheme introduced by the Board of Education.

He emphasised the necessity of waiting to see what happened in regard to secondary education under the scheme of the Board of Education. The Education Committee could then report to the Council.

Dr. NORMAN MOORE seconded. He said that he had been struck by the amount of business which must be got through before the scheme of the new Board of Examiners was settled. Important as the medical entrance examinations appeared to the Council, they represented only a fragment of what had to be dealt with.

The recommendation was adopted.

Apothecaries' Hall of Ireland.

Sir FREDERICK TAYLOR submitted a report from the Examination Committee on various matters relating to the Apothecaries' Hall of Ireland. He stated that a letter had been received protesting against the employment of a deputy to attend the examinations of this licensing body. The Irish Branch Council had appointed Dr. William Boxwell as deputy to attend on behalf of the General Medical Council the examinations of the Hall for one year ending Dec. 8th, 1917. Dr. Boxwell was absent on service at the front during part of his period of office, and the Irish Branch Council in May appointed Dr. R. J. Rowlette as temporary deputy. Dr. Boxwell suggested that his report should be deferred until the termination of his year of office, and it would be presented to the Council next May. In these circumstances he moved that the Irish Branch Council should be authorised to appoint for the period of one year a deputy to be present on behalf of the General Medical Council at the professional examinations held by the Apothecaries' Hall.

Dr. N. WALKER seconded.

Dr. MAGENNIS said that he had no objection to an inspection of the examinations of the Apothecaries' Hall of Ireland provided other bodies were also inspected.

The recommendation was adopted.

Pharmacopœia Committee.

On the motion of Dr. NORMAN MOORE, the report of the Pharmacopœia Committee was adopted. It was in the following terms:—

The number of copies of the British Pharmacopœia, 1914, which were sold by the publishers between May 20th and Nov. 24th, 1917, was 1220. The number sold in the year ending Nov. 24th was 2319. The total number sold since the date of publication is thus 29,354. A third

issue of 5000 copies has been prepared; in this issue a misprint detected last year is corrected.

In pursuance of the power delegated to the committee by the Council last May, further communications on the subject of glycerine and sugar were made to the Home Secretary's Committee and other authorities. It appeared to be necessary in the national interest that immediate steps should be taken to discourage the use of these substances in pharmacy, and the committee agreed unanimously to the temporary withdrawal from the Pharmacopœia of the official directions for their use in the compounding of certain preparations. The proper notices for the alteration and amendment of the British Pharmacopœia, 1914, were accordingly published on behalf of the Council in the *Gazettes* of London, Edinburgh and Dublin, on July 27th, 1917, and are now operative. A leaflet setting forth the terms of the *Gazette* notice has been inserted in each copy of the new issue of the Pharmacopœia.

The British Medical Association has forwarded a resolution passed by its annual Representative Meeting in July, 1917, to the effect that, in the opinion of the Association, the general use of the metric system in the teaching of dispensing prescribing, and treatment would be beneficial to the scientific interests of the medical profession. The Pharmacopœia Committee desire to express their concurrence with this opinion.

The Pharmaceutical Society of Great Britain has published a series of unofficial formulæ for certain preparations which have hitherto contained glycerine or sugar. These may usefully be adopted by prescribers in place of the formulæ that have been temporarily withdrawn. It is desirable that uniformity should, as far as possible, be preserved in the compounding of medicines which may still be ordered or dispensed under the names that were formerly official. The action of the Pharmaceutical Society in the present emergency is thus timely and useful.

Dental Education.

Mr. TOMES submitted a report from the Dental Education and Examination Committee. The committee had drawn up rules and recommendations as to the course of study in accord with the conclusions provisionally arrived at by the Council in 1916. This report was still before the Council, and it was for the Council to decide whether its consideration should be proceeded with, or, in view of the appointment of a departmental committee on the Dentists Act, should be again postponed, a course which the Dental Education Committee thought might be desirable.

In reference to this report, the University of Manchester and the University of Liverpool had reaffirmed their opinion that the minimum period for the study of mechanical dentistry should be 2000 hours at a recognised school, or 2500 hours with a registered dentist. The University of Manchester was further of opinion that private pupilage should be abolished. The University of Bristol had given a general approval to the report.

The report was adopted.

Public Health Diplomas.

Sir J. W. MOORE, in submitting the report of the Public Health Committee, stated that the committee had had before it the question of recognition of work carried out in connexion with the Army in the field in lieu of certain parts of the courses of study prescribed for the diploma in Public Health. Lieutenant-Colonel W. W. O. Beveridge, the Assistant Director for Medical Services (Sanitation) with the Expeditionary Force in France, had attended and given the committee information as to the conditions existing in the British Armies in the field which would justify temporary modifications in the rules and regulations for the diploma in Public Health. The committee had decided to suggest the adoption of certain temporary modifications in the existing rules and regulations in the case of medical officers of the Expeditionary Forces.

On the motion of Sir J. W. MOORE the following recommendation was adopted:—

Additional Note to Rule 2.—Alternative Arrangements for British Armies in the Field. That the laboratory experience at a Base Hygiene Laboratory, when and so far as approved by the General Medical Council, shall count towards the four months' laboratory course prescribed by the Council; and the laboratory experience acquired by medical officers on the staff of hospitals for infectious diseases shall count for such part of the laboratory course for the Diploma in Public Health as the A.D.M.S. (Sanitation) may recommend, and the General Medical Council on consideration may approve.

Another recommendation was adopted defining the class of officers who must be in charge of laboratories in which the course is taken under the alternative arrangement.

Medical Certificates.

Sir A. NEWSHOLME said that it was well known to some members of the Council that the national machinery of recruiting was being very seriously impeded by the unsatisfactory medical certificates received. Further publicity, he said, should be given to the remarks of the President on this subject. He should have liked if they could be distributed to every practitioner in the country, who should be informed that all certificates as to medical conditions should, whenever possible, be based on personal observation, and where that was not possible the certificate should embody a statement to that effect. This suggestion might be well communicated to the Medical Advisory Board in the Ministry of National Service with a view to consideration by them to see if any such steps could be taken.

Dr. NORMAN MOORE thought that the vast majority of the medical profession knew quite well that they ought to tell the truth. It was nothing more than that.

Sir A. NEWSHOLME remarked that some medical men did not appreciate the difference between the facts which came to them by personal knowledge and statements made to them. That fact needed to be brought home to a small minority.

The PRESIDENT said that the question was whether in the circumstances of the Ministry of National Service, where a large number of certificates were required from medical practitioners, it might not indicate to practitioners the nature of the certificates which alone would be accepted and be helpful for the purpose for which they were given. If the Ministry thought it desirable it would probably issue an intimation. It was suggested that the Council should communicate to the Ministry its warning notice and the passage from his speech. That would be done as a matter of communication.

This concluded the business of the session, and the Council rose, to reassemble in May.

New Inventions.

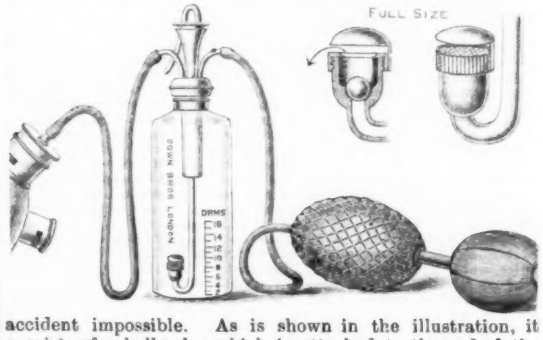
DOUBLE CINCH BINDER.

Mrs. Morison Ltd., of 47, South Molton-street, Bond-street, W., has made a double cinch binder with metal plate for a patient of mine with a ventral hernia following cholecystectomy. The hernia was the size and shape of a half cocoanut. The patient, who was a big man aged 58, with a circumference of 42 inches, can now shoot and do a good deal of farm work. Without the binder he could do practically nothing, and had many dyspeptic symptoms. The binder is well fitted at back and sides with bone stays, and buckles from alternate sides like a many-tailed bandage, so that great pressure is exerted on the hernia itself, without the binder being too tight. Moreover, the appliance is not cumbersome and is suitable for day or night wear.

Star Hill, Rochester. CLEMENT WHITE, M.D. Camb.

A MODIFICATION OF THE JUNKER INHALER.

IT is well known that accidents have at times occurred when using the Junker inhaler through the bellows having been by mistake attached to the outlet instead of the inlet tube, and the contents of the bottle so expelled. I have had made a modification of the inhaler which renders the accident impossible. As is shown in the illustration, it consists of a ball valve which is attached to the end of the inlet tube inside the bottle. It is simple, cannot get out of order, and quite does away with the danger mentioned.



Messrs. Down Bros. are the makers.

MORRIS RIGBY, M.R.C.S., L.R.C.P. Lond.,
Capt. R.A.M.C.T.; Anæsthetist, Sussex County Hospital; Anæsthetist, 2nd Eastern General Hospital, Brighton.

THE LANCET.

LONDON: SATURDAY, DECEMBER 8, 1917.

Intensive Medical Treatment.

IT is now three years since the Medical Research Committee settled down to its task of promoting investigation into the origin and treatment of disease with a view to making effective the great scheme of National Insurance, from whose funds its income is drawn. The present report[1] brings the account of work done down to the end of September, 1917, and the first glance into it confirms the obvious fact that a division of the schemes of inquiry into two sections—one of peace and one of war—can no longer be maintained except as a matter of convenience in indexing, since the investigations have become inextricably intertwined. To a nation at war any gain in the store of available medical science is a matter of vital concern, whether it immediately affects soldiers or civilians. The study of problems which emerge in war-time out of unusual and temporary conditions will have permanent value in a peaceful future. The stress of industrial work due to munition-making has stimulated a study of the laws of fatigue and of right living, while the limitation of food-supplies has forced us to gain a clearer knowledge of essential biochemical and dietetic laws.

The fact of the collection of large numbers of men under military rule has made it possible to obtain information, otherwise almost unprocurable, as in the great research into the renal efficiency of 50,000 young men leading active lives in a training camp. Medical investigation in peace-time at civil hospitals has too often been chiefly directed to the study of advanced stages of disease. War conditions have stimulated the study of the early stages in which disease can be most easily checked as well as most fruitfully studied. Prevention is more important than cure, and the rapidly organised study of irritable heart in soldiers and of the early symptoms of T.N.T. poisoning have already had results of practical importance. The employment of physiological principles in the administration of oxygen, first tested in cases of gassing and then applied to the needs of flying men at high altitudes, will of necessity react helpfully on the methods of restoration in mining accidents. The Committee states its belief that the devotion of a Government fund to research in medicine has already played a large part in fostering a growing trust in research work in other spheres. On the lowest basis the monetary gain from the Committee's work is already incalculable; each of at least half a dozen of the schemes put into practice has saved the country from expenditure which must be reckoned in multiples of the whole of the Medical Research Fund. Some readjustment of the sources of the fund, which has yielded in the current year £7000 less than was expected, is therefore abundantly justified.

The report gives telling instances of the value of assembling a large number of similar cases, whether medical or surgical, for the purpose of collective study, and another good example can be found in the papers, which we print in the present issue, by Major H. D. GILLIES and Captain W. KELSEY FRY. They are the first of a series from the Queen's Hospital for Facial Injuries at Sidcup and well illustrate intensive treatment. At this hospital the rapid evolution of the successful remedy of apparently hopeless facial injury has largely been the result of friendly rivalry between a number of active intelligences brought to bear upon collected material of an unusual character. Such an intensive culture of scientific method under the stimulus of collective interest and criticism is here seen to produce results which could hardly have been attained by a generation of sporadic individual effort. It is worth while to try to draw the right conclusions from this success, because it cannot lie merely in the grouping together of similar cases in institutions. No point was brought out to more effect in the recent discussion on sanatorium treatment at the Medical Society of London than the disastrous result which may attend the grouping together of cases of chronic disease, unless the necessary stimulus towards recovery is provided. Dr. HENRY ELLIS'S remark in that debate that institutional treatment of the tuberculous might fairly be judged by the presence or absence of what he termed "sanatorium disease" evidently commended itself to many of his hearers. Whatever the administrative advantages gained, the assembly of patients suffering from similar ailments is, at least from the medical point of view, a questionable undertaking unless a continued evolution of the methods of recovery is present as a constant stimulus to staff and inmates alike. Our record of asylum practice is none too encouraging in this respect, and the detailed rather than the concentrated treatment of neurasthenic cases, which has received much influential support has its foundation on this fact. Intensive treatment does not necessarily imply institutional treatment, which presents its own particular difficulties and dangers.

[1] The Third Annual Report of the Medical Research Committee. His Majesty's Stationery Office. 6*d*. net.

The Personation of Medical Practitioners.

SIR DONALD MACALISTER, in the presidential address at the winter session of the General Medical Council, which has just been concluded, called serious attention to the fact that the present shortage of medical men was inducing unqualified individuals to personate registered medical practitioners; and we have received from a correspondent a suggestion that on registration all medical men should have their finger-prints officially taken.

for he believes that personation of medical men by impostors is common. Our correspondent's letter was provoked by the recent case of the man SIDDONS. It will be recalled that SIDDONS, who was committed for trial at Liverpool Assizes early in the autumn, for personation of a medical man among other things, escaped justice by committing suicide a few days before his case would have been heard. Conviction upon some at least of the charges against him was certain, and the Defence of the Realm Act would have been found to have added penalties to those incurred by persons who are detected in signing certificates and otherwise posing as duly qualified medical practitioners without being such. SIDDONS, or VIRTUE, as his name in comical fact was, if not uniformly successful in a criminal career, was an ingenious and pertinacious rascal. At some time of his life he obtained a sort of training in the direction of veterinary medicine, but he found that to pretend to be a medical man, and to personate some individual not likely to be confronted with him, offered a better opportunity of earning a living. His most striking performance consisted in the personation, a few years ago, of Mr. R. H. BARBER, a medical man who had been drowned abroad and whose name had not been removed from the Register. In the character of R. H. BARBER, SIDDONS practised medicine for five years in various places without being detected, but belated suspicions being aroused the charge of personation was easily established. The expiry of a sentence for this offence of nine months' imprisonment in the second division left him at liberty to resume his courses, and the war, which commenced soon after his release, afforded him a good opportunity. The bogus practitioner was not, however, satisfied with drawing illegal emolument for services which he could not render: he endeavoured to enrich himself by underclassing the recruits whom he examined, and awoke thus the official vigilance which had been sadly at fault when he secured his responsible position.

The whole story came as somewhat of a shock to the public, as we have had recent occasion to learn; so that it may be well to point out that no large number of impostors of the SIDDONS type can exist at any one time in the kingdom, and that very few of these escape ultimate detection. There may well, however, be such persons, and Sir DONALD MACALISTER'S warning proves that their existence is likely; nor need we wonder, when we read in the police reports of their ultimate detection and punishment, how they managed to succeed for a brief period. Such men usually live in crowded centres where they can practise chiefly among the poor and ignorant, without associating themselves in any way with the medical life of the locality. If thrown accidentally into communication with any of those with whom professional comradeship has been assumed, they can decline from motives of taste to talk "shop," or can ask to be reticent concerning the confidences of a patient. A rank impostor would assuredly betray himself if he made any close medical acquaintances, but by steering clear of all association with medical men a surface familiarity with practice will cover depths of ignorant pretence. Reference to the Medical Register or Medical Directory if doubt arises does not settle the matter of qualification in the case when the deceiver is also an impersonator, who can only be detected by some inconsistency of dates or localities with apparent age or appointments. It may not be desirable that medical men should play the part of detectives and be unduly curious as to their colleagues' antecedents, but at the same time where the credit of their profession and the safety of the public are both concerned, their expert knowledge is rightly exercised in setting on foot inquiry to be carried out by others if a legitimate reason occurs for suspecting fraud. The Medical Register is now most carefully kept, but no amount of zeal on the part of the Registrar will entirely prevent fraud while many of the medical profession neglect to notify the bureau of changes of address. Government departments and public authorities should above all exercise extraordinary care at the present moment, when a shortage of qualified medical men is accompanied by wholesale, if temporary, changes in their address. Apart from the evidence of the Medical Register and the Medical Directory, personal identification should be required if the slightest doubt arises. Very few men or women would be desirable candidates for any medical post who could not produce proof of their identity from some other member of the medical profession.

To return to the suggestion that medical men should have their finger-prints taken on registration, to be kept in an official record, it may be pointed out that, apart from the objection to maintaining a record only used as yet for criminals, the proceeding would be an act of unnecessary precaution when applied to medical men. In trying a recent case at the Westminster police-court Mr. ROOTH declined at first to receive evidence as to previous convictions of a prisoner based upon finger-print records, which were the only proofs of those convictions. Although it was stated that the prisoner, when confronted with the records of his previous misdeeds, had admitted them, the magistrate insisted that there should be personal identification by witnesses who saw the prisoner on the previous occasions referred to. On a later day, however, he passed sentence without waiting for such additional evidence, after explaining that he had gone into the whole matter personally at Scotland Yard and had satisfied himself that the risk of error was very small, and that a strong *primâ facie* case was made out when finger-prints and photographs of the person accused combined to establish identity. None the less, he was right in his intent to look for further evidence in such cases. Finger-prints afford a most valuable, and now indispensable, means of identifying and indexing persons who pass through the hands of the police. But a certain possibility of error on the part of those handling such records exists, even if a similarity of prints cannot conceivably lead to injustice. Personal identification alone is not a safeguard against a miscarriage of justice. The BECK case, for example, showed clearly how personal identification

at any rate by unpractised and perhaps prejudiced witnesses, may err. In practice, also, a judge or magistrate would give weight to a prisoner's strenuous and consistent denial of crimes with which finger-prints alone had connected him, and to any apparently honest alibi. In such a case personal identification can always be invoked, but, as a rule, prisoners are too conscious of their previous delinquencies and of the strength of the evidence of finger-prints to dispute the matter. We do not think that the provision of means of identifying registered medical men by their finger-prints is in the least called for, but we do feel that, where any doubt could arise as to a man's right to the name which he is using, the furnishing of personal identification should be a necessary prelude to any appointment.

Annotations.

"Ne quid nimis."

EPSOM COLLEGE.

THE financial position at the present moment is bearing hardly on all classes; those who are more fortunate in worldly position have many calls upon their purse, and, on the whole, are responding well; the other section of the community are bearing the strain of the increased prices bravely; but the net result is that all charities are appealing for the poorer to persons who themselves are growing poor. This condition of things applies to the medical foundation of Epsom College, for while annual subscriptions have been lost on account of the war and because so many medical men are engaged away from their homes on military duty, on the other side, in addition to the normal calls for assistance, there are an increasing number of dependents of victims of the war who need help. Already the governors have elected as a Foundation scholar the son of a medical officer in the Royal Navy who was killed in action on board H.M.S. *Good Hope*, and there are on the list of candidates the son of a medical officer in the Royal Army Medical Corps who was lost in the *Royal Edward* when she was torpedoed in August, 1916, and the son of a medical officer who was killed last April. From Sir Henry Morris's letter, which appears in another column of this issue, as well as from the statement in our advertising pages, it will be seen that although much effective assistance has already been given the applicants far exceed the number of foundation pensions and scholarships that are available. We have pleaded the cause of Epsom College for so many years that it should not now be necessary to insist upon the duty of every medical man to subscribe to an institution which in the chances and changes of life may be called upon to minister to the needs of many. We hope that every member of the profession, who is able, will either send a donation to, or become a governor of, this necessary and worthy institution.

THE X RAY DIAGNOSIS OF GALL-STONES.

THE difficulties and uncertainty which surround the evidence from X rays in relation to the detection of gall-stones have long been familiar. The character of the stones, their varied translucency, and the vagueness of the shadows they may present have been factors responsible for the undoubted tendency to ignore the possibilities of roentgenology for their detection. However, a strong case has been made for the practical value of these methods by Dr. J. T. Case, of Battle Creek, Michigan, whose experience is almost unrivalled. He states his views and the evidence on which he bases them in a paper, entitled "The Value of the X Ray Examination in Cholelithiasis," in the *Annals of Surgery* for July. He divides gall-stones into three groups: 1. Composed of pure cholesterin; these are quite invisible to X rays. 2. Stones containing a relatively large quantity of lime salts; these are easy to detect. 3. The largest class, made up of stones in which the amount of lime is relatively low. It is the detection of these cases which determines success or failure of the method. A chemical analysis was made for Dr. Case of the lime content of a number of gall-stones. Where the X rays were negative and yet gall-stones were found at operation, the percentage of calcium oxide in relation to the total weight of the stone was 0·30. Among the positive cases—i.e., in the instances where the X ray evidence of the presence of stone was confirmed, but where shadows were most difficult to detect and were seen only upon very careful oblique illumination of the roentgenogram—the lowest proportion of calcium oxide was 0·425 per cent. These examples, doubtless, fall under Class 3. Now Dr. Case found that, in a series of 1000 consecutive bismuth-meal examinations, there were 40 instances of gall-stones; in Cole's series of 500 similar cases, quoted by him, gall-stones were found in 20 cases—the same percentage in each series. The figure 4 per cent. represents roughly the number of positive findings; for autopsy statistics from 19 American and European authors the average frequency of gall-stones is given as 5·9 in 18,892 autopsies. Hesse summarises 17,402 autopsies done in ten years in Petrograd, and finds gall-stones in less than 3 per cent. Dr. Case accepts, however, a generous 10 per cent. of probable gall-stones in his gastro-intestinal and genito-urinary cases combined, and thus finds that positive X ray examination has been gained in roughly 50 per cent. of cases. Similarly, in a series of 5000 consecutive patients examined for suspected disease of the gastro-intestinal tract, lumbar spine, or right kidney (instances in which the region of the gall-bladder would be automatically included) positive findings were made in 4·5 per cent. of the cases. Again, accepting 10 per cent. as possible gall-stones, 45 per cent. of these were demonstrated by X rays. These are, of course, only estimated figures. Accordingly Dr. Case took a series of 300 consecutive abdominal cases operated upon, in which the gall-bladder was examined at the time of operation as well as by X rays beforehand. Gall-stones were found at operation in 41 cases, and of these, 20 had been reported "positive" by X rays; here again, roughly, half of the gall-stones can be detected in this way. X rays are claimed as of value also in gall-bladder disease, in many cases showing right upper quadrant adhesions with fixation and even sometimes the thickened gall-bladder. Finally, the author says:—

> We can therefore conclude that it is definitely possible to show gall-stones in approximately 50 per cent. of the positive cases and to show a gall-bladder lesion in 85 per cent. of cases of gall-bladder disease. ..... Gall-stones are demonstrable with much greater frequency than has until lately been conceded. The frequency with which stones may be shown is so great that I believe the time has arrived when the X ray examination should be required in every suspected case.

DIAPHRAGMATIC HERNIA AS A SEQUELA OF WAR INJURIES.

DIAPHRAGMATIC hernia is not a very uncommon condition, but it has in the past generally been overlooked. With the increasing employment of the fluorescent screen in all obscure abdominal cases the diagnosis is likely to be made more frequently during life. Few cases have as yet been reported as the result of gunshot wounds, possibly because the hernia in case of injury to the diaphragm often does not develop until some time after the injury. Such a case is very completely described by Major L. M. Murray and Major J. D. Morgan in our present issue. The man was completely buried by a shell explosion, and when dug out was unable to stand on account of pain referred to the region of the eighth and ninth dorsal vertebræ. On aspiration of his left chest some blood-stained fluid was obtained, but the hernia was not suspected until after his evacuation to the Canadian special hospital, when metallic tinkling was audible over the left chest. A bismuth meal and X ray examination confirmed the presence of the hernia, the relations of which are admirably shown in the series of X ray prints. Another case has recently been reported by Gustav Ranft,[1] the man dying 16 months after a gunshot wound of the lung. The case is thus described:—

> Within ten weeks after the injury the man seemed to have recovered so completely as to be returned to duty, and, indeed, he served in the field two or three times. In the intervals, however, he was admitted to hospital for gastric catarrh, which seemed of an ordinary kind, and for pain in coughing and sneezing. Eventually bronchitis and pleurisy supervened, from which he died. At the necropsy the lowest third of the left pleural cavity was found to be almost completely filled by bowel tightly distended with liquid fæcal matter. It was the transverse colon, and had penetrated into its unusual situation in the thoracic cavity by means of an opening in the diaphragm large enough to admit two fingers. Dense adhesions bound the intestine to the diaphragm, and round the opening were old scars.

The author concludes that in wounds of the lower thoracic region the possibility of a traumatic diaphragmatic hernia should always be kept in mind. If on further investigation the suspicion is found to be confirmed, the patient should not be pronounced militarily fit, lest, as in this case, serious or even fatal disease of the respiratory organs ensues.

ACUTE ANGIO-NEUROTIC ŒDEMA DUE TO A DOSE OF KHARSIVAN.

OUR knowledge of the possible toxic effects of salvarsan and its substitutes has been acquired only gradually. Why they occur in a few cases and are absent in the majority has not been satisfactorily explained. The suggestions made by Ehrlich and his followers that they are due to administration in unsuitable cases, in which grave organic disease of the nervous or circulatory system is present, or that they are due to errors of technique, have been negatived. There remain only the somewhat unsatisfactory explanations of idiosyncrasy to account for toxic effects following a first dose, and of anaphylaxis to account for the more frequent occurrence of toxic effects after a second dose. In the *Journal of the Royal Naval Medical Service* for October, Surgeon Roderick J. G. Parnell and Temporary Surgeon W. C. P. White have reported a case in which a dose of kharsivan gave rise to a previously undescribed toxic complication—acute angio-neurotic œdema—though an almost identical case had been observed by Staff-Surgeon Paul Fildes.

A stoker, aged 45 years, was admitted to Haslar for primary syphilis. The heart, lungs, urine, and alimentary and nervous systems were normal. On Oct. 29th he was given 0·5 gramme of kharsivan. On the same evening his temperature rose to 99·6° F., and he developed a well-marked Herxheimer reaction. In the morning his temperature was normal and all traces of reaction had disappeared. On Dec. 8th the dose of kharsivan was repeated. During the injection he was somewhat restless, but he made no complaint, and it was presumed that he was merely nervous. Twenty minutes later he became collapsed with an almost imperceptible pulse, face swollen and somewhat cyanosed, and lips and eyelids œdematous. He was unable to speak and very restless. Soon he began to secrete saliva with great freedom, so that paroxysms of distressing cough, due to the saliva passing down his throat, occurred. After about five minutes he could speak in a whisper and complained of pain in the throat, over the heart, and in the pit of the stomach. An intramuscular injection of ether and a hypodermic injection of adrenalin were given. The foot of the bed was raised and a pint of saline solution was injected into the rectum. He gradually improved. He was turned on his side to aid the outflow of saliva from the mouth and the œdema was obviously less 1½ hours after the onset. The buccal mucous membrane was very œdematous. After 3½ hours the salivation and cough were less, but he complained of slight headache and was inclined to sleep.

Staff-Surgeon Fildes's case was as follows:—

> A powerfully built officer who had a large chancre containing *Spirochæta pallida* and a positive Wassermann reaction as the only manifestations of syphilis was given 0·6 gramme of salvarsan. A severe reaction, against which he had been warned in view of his clinical condition and the absence of treatment, followed. He shivered during the night, vomiting and diarrhœa occurred, and next morning a profuse macular syphilitic rash had appeared. On the following morning he returned to duty. Ten days later the dose was repeated without ill-effect. A month later it was repeated again, all signs of syphilis being absent. Within five minutes he had a metallic taste in the mouth. A few minutes later the taste was worse and he complained of pain going down his throat. He was found sitting on the bed with bloodshot eyes and suffused face. The lips, face, and eyelids became swollen, and watery fluid poured from, or was spat from, the mouth. The heart was extremely irregular, weak, and rapid. The voice became progressively weaker until he was unable to speak. He then gradually improved. After about three hours it was possible to observe that the whole buccal cavity and tongue were still markedly œdematous.

Surgeon Parnell and Surgeon White ask why the drug selected the area of the fifth cranial nerve for distribution of the lesions. Laryngeal œdema did not occur. If it had the cases would probably have been fatal.

[1] Deutsche medizinische Wochenschrift, 1917, No. 22.

PELLAGRA IN THE WEST INDIES.

IN 1913 Dr. L. W. Sambon,[1] under instructions of the Colonial Office, visited the British West Indies to investigate a diease, reported to be pellagra, prevalent in some of the islands, and to study the conditions under which the malady was appearing, so that appropriate measures for its prevention might be formulated. Dr. Sambon has prepared a preliminary and a further report, the first dated 1915, and the second 1917. These have now been issued with a prefatory note by the Colonial Office, stating that it was considered undesirable to defer publication, though the report was still incomplete. Dr. Sambon expresses the definite opinion that, though only recently recognised in that region, the disease is an ancient one in the West Indies; he adds that after carefully examining a considerable number of cases, in all stages of the malady, the disease he saw was genuine pellagra, differing in no way from the pellagra seen in Europe and the United States. He

[1] West Indies. Reports on Pellagra in the West Indies, by Dr. Louis W. Sambon M.D. Naples. London: Published by His Majesty's Stationery Office. 1917. Pp. 62. Price 6d.

found it associated frequently with other complaints, of which he gives an enumeration, and this association of disorders sometimes rendered the diagnosis difficult. "Pellagra," according to Dr. Sambon, "like leprosy, syphilis, and tertian fever, which have an equally world-wide distribution, is identically the same disease wherever found, whether in Europe, Asia, Africa, America, or Oceania." Discussing the etiology of pellagra and reviewing a mass of evidence, Dr. Sambon concludes that food plays no part in the production of the disease and that maize, sound or unsound, has nothing to do with the causation. The opinion held by some experts in this country and America that pellagra should be classed as a "deficiency" disease due to an ill-balanced and monotonous diet does not receive in the present report the consideration that one might have expected, nor are the human experiments of Goldberger and others in support of it mentioned.[1] Dr. Sambon originated the hypothesis that pellagra is an insect-borne infectious disease, but in his present reports he does not adduce much in support of this view. Probably the evidence in reference to conflicting theories as to the causation of pellagra will appear in an extended report which is foreshadowed.

AN APPEARANCE OF COLOUR SPECTRA TO THE AGED.

AN interesting note on this subject appears in a recent number of *Nature* from that veteran ophthalmologist, Mr. R. Brudenell Carter, founded on personal experience. He finds that he sees rainbow colours surrounding any small light viewed at a distance sufficiently great not to produce contraction of the pupil, and since the condition of his own eyes is, with optical correction, absolutely normal, he attributes the phenomenon to some senile change in the crystalline lens of each eye which does not affect the acuity of vision. The appearance of such spectra is not quite confined to the aged, for a later correspondent in *Nature* recalls an observation of Tyndall's in which an artist was for a time troubled with coloured rings. We think that Mr. Carter is correct in his lenticular interpretation of the phenomenon, while the change may be none other than those non-progressive opacities seen in the periphery of the lenses of many old people, which the late Mr. W. H. H. Jessop used to call "arcus senilis lentis." We do not know, but we make the suggestion to Mr. Carter, who will appreciate it at its worth.

THE report of the Advisory Committee of the Central Control Board (Liquor Traffic), under the chairmanship of Lord D'Abernon, is nearly completed. It deals with the action of alcohol on the human organism, and will be published in the near future as a book and at a price that will make it accessible to the general public. Lord D'Abernon's committee consists of Sir George Newman, Professor A. R. Cushny, F.R.S., Dr. H. H. Dale, F.R.S., Captain M. Greenwood, Major W. McDougall, F.R.S., Major F. W. Mott, F.R.S., Professor C. S. Sherrington, F.R.S., and Dr. W. C. Sullivan, and we may fairly expect from such a body of experts an unbiassed and authoritative statement.

[1] THE LANCET, 1916, i., 93; 1917, i., 27.

Dr. A. J. Rice-Oxley has been re-elected chairman of the Public Health Committee of the council of the Royal borough of Kensington.

OUTBREAKS OF PLAGUE ON S.S. *SARDINIA* AND *MATIANA*, 1917.

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The Outbreak on the s.s. Sardinia.

THE S.S. *Sardinia*, from Melbourne, *via* Bombay and the Mediterranean, arrived at Gravesend on May 2nd with a crew of 45 Europeans and 129 natives of India and 32 passengers. Five cases of plague had occurred during the voyage. Two natives died on the way up the Channel and were buried at sea, a third died before removal, and two more cases were discovered in the examination of the ship on arrival at Gravesend. The two cases and the corpse were removed to the isolation hospital of the Port Sanitary Authority and the ship was detained at Gravesend. On the following day, May 3rd, a lascar was found to have fever without other symptoms and was removed to hospital; he died of plague on May 8th. A seventh case was taken ill on board on May 6th and died of plague on the 9th. Six of the seven cases were in natives of India and one in a British storekeeper.

The ship's movements were as follows: Left Sydney, Feb. 23rd; Melbourne, Feb. 26th; was at Bombay March 19th to 22nd; thence *via* Aden, Suez, Port Said, and Malta to Marseilles, where a stay from April 13th to 16th was made for discharge of cargo. After further discharge of cargo at Gibraltar on April 22nd the ship arrived in the Channel on April 29th and at Gravesend on May 2nd.

Tabulation of Cases.

	Rating.	Berthing in forecastle.	Date taken ill.	Result.
1	Lascar.	Starboard.	April 27th.	Died Apr. 30th.
2	Coal-trimmer.	Lower.	,, 27th.	,, May 1st.
3	,,	,,	May 1st.	Recovered.
4	Fireman.	Port.	,, 1st.	Died May 2nd.
5	Storekeeper.	Alleyway.	April 28th.	Recovered.
6	Lascar.	Starboard.	May 3 d.	Died May 8th.
7	,,	,,	,, 6th.	,, ,, 9th.

Cases 1, 2, and 4 presented large cervical buboes, Cases 5 and 7 presented femoral buboes, and Case 3 presented an inguinal bubo. Case 6 was a septicæmic one without local lymphatic incidence; from beginning to end the only sign was fever. Films made from the viscera of Cases 4, 6, and 7 at the hospital gave abundant bipolar bacilli. Pus from Case 3 was found by the pathologist to the Local Government Board to be infective on animal experiment.

The British storekeeper, Case 5, gave a straightforward history of onset, being awakened in a shivering fit and finding tenderness in the region of the femoral glands in the early morning of April 28th. None of the cases were pneumonic in type at any stage of their history.

All the cases occurred in the fore part of the ship. The starboard top-gallant forecastle is devoted to deck crew and the port to the firemen and coal-trimmers. Approached from the port forecastle is a 'tween deck quarters appropriated to the coal-trimmers. Cases 1, 6, and 7 were in lascars who berthed close together in the starboard forecastle. Cases 2 and 3, in coal-trimmers occupying the 'tween deck quarters, and Case 4, in a fireman occupying the port forecastle, berthed next the stairway leading to the 'tween decks. The British storekeeper lived in a cabin opening into the starboard forecastle alleyway. It is noteworthy that the native food was kept in a storeroom in the forepeak, approached by a trap and ladder in the floor of the starboard forecastle; also that the natives' galley was situated amidships at the forecastle. The native food-store was quite shut off from direct communication with the holds, being situated ahead of the collision bulkheads.

Rats.

The cargo from Australia consisted largely of wheat, flour, skins, and dried fruits; that from Bombay of pears, lentils, and Acajou nuts: the holds would therefore form an attractive nidus for rats. At Bombay traps were procured on account of the number of rats which had been seen since leaving Australian ports. At Marseilles fumigation of the foreholds with sulphur dioxide took place, the cargo

being *in situ*; the fumigation was carried out by means of the Clayton apparatus. I am informed that it is usual to fumigate holds containing more than 500 tons of cargo destined for Marseilles from an infected port such as Bombay. Three dead rats were thrown out from the carpenter's storeroom adjoining the food store and situated in the forepeak soon after the ship left Marseilles. The significance of the dead rats was not noticed at the time; the mortality was ascribed to the Marseilles fumigation, although the rats were found in front of the collision bulkhead where fumes could not have reached them.

The ship left Marseilles on April 16th and the first human case occurred on April 27th. It was said that a sick rat had been seen by some member of the crew soon after leaving Port Said; this history was obtained subsequent to the rousing of considerable interest among the crew in the matter of sick rats. I am, however, inclined to believe that a sick rat, or rats, were seen before Marseilles was reached. The British storekeeper, one of the first cases, issued the native stores, for which purpose he went periodically down into the storeroom, often only in slippered feet. In a former experience of plague in the port the issue of native stores was the duty of the *kasab*, and he alone of the crew was attacked by the disease; he had thrown dead rats out of the storeroom; his bubo was femoral also.

It is probable that infected rats found their way on board at Bombay with the food cargo taken there, and that the infection was more or less confined to the holds until arrival at Marseilles; and that here rats, some of which were infected, gained access to the forecastles and food store, infecting the rat inhabitants already in the forecastle quarters, and themselves taking up their habitation there, where the galleys and the food store formed an ample attraction. The fumigation of the foreholds at Marseilles gives rise to the suspicion that rats may have been even driven to the living quarters; it is a difficult matter to effectively fumigate the holds in the presence of cargo. The hatches were lifted after fumigation at Marseilles and again at Gibraltar. In addition to the possibility thus afforded of infection taking place along the deck, the following structural detail is worthy of notice. The chain lockers on the *Sardinia* are connected to the bilges by a scupper; this is a good exit for rats from the holds in case they are disturbed there. The chain lockers communicated with the lower forecastle by a trap-hatch, which was opened at Bougie and again at Gibraltar to stow chain. The chain locker would form a refuge for rats in case of an incomplete or ineffective fumigation. Two of the cases occurred in the lower forecastle. These facts may have a joint significance. Again, the native food store is ventilated to the extreme forecastle-head by a goose neck; the chain pipes and this goose neck form a path of no difficulty to a rat, from chain locker to food-store. The partial fumigation is thus a possible determining factor in the human outbreak. Theoretically, holds should not be fumigated where infection is suspected without simultaneous fumigation of at least that human accommodation to which access from the holds may be gained by rats."

Preventive Measures.

The measures taken with a view to prevention of spread of plague on board and ashore were as follows:—

The cases were removed to hospital and the whole of the crew and contents of the infected quarters removed for bathing and steam disinfection respectively. While the men were bathing at the disinfecting station their clothes were passed through the Washington Lyon apparatus and their quarters on board fumigated by burning sulphur candles, one pound to the 1000 cubic feet therein. This implied the simultaneous fumigation of the forepeak. The time of exposure to sulphur dioxide was over 15 hours. These measures were calculated to make the living quarters temporarily safe for habitation with respect to rats and fleas.

The passengers were landed forthwith on arrival; their names and addresses were forwarded to the several sanitary authorities at their destinations in accordance with the system of "surveillance" which has superseded quarantine in this country. The crew remained on board under daily observation; if a member of the white crew were permitted to go off the ship for a short period "surveillance" was assured.

Cargo was completely discharged into barges while the ship lay on quarantine grounds and before the fumigation for finally ridding the ship of rats was made. This implied observation of each package passed overside to see that no rat escaped therewith; the mooring ropes of the barges were guarded against escape of rats by way of them. The grain cargo was shot out of sacks overside, flour sacks were scrutinised to prevent possible transfer of a contained rat. Bundles of skins would form a likely nidus, these were watched both on loading and discharge of the barges; a dead rat was found in one of these bundles. As a further precaution much of the cargo was stored for 14 days or longer and a watch set on the rat population of the neighbourhood of storage. Goods for transmission to America may require certification either of freedom from infection or of disinfection. Goods stored thus were certified.

The ship-workers were clad in overalls tied in at the ankles and wrists against possible attacks by fleas; all workers were placed under "surveillance" in the way described for passengers. Everybody concerned with the ship was alive to the danger from rats and to the circumspection with which they should be treated whether alive or dead.

On complete discharge the ship was filled by means of the Clayton apparatus with 3 per cent. sulphur dioxide gas.

A single illustration shows the necessity of simultaneous fumigation of crew accommodation and holds.

The cabin situated opposite the insulated meat store in the port alleyway amidships was filled with fumes from No. 4 hold on fumigation of this hold; the store was similarly filled. The connexions between the hold and these rooms were rat runs. Under fumigation of the holds alone rats could be driven into these places and thence into the whole of the adjoining quarters; this would be the more likely to occur if, owing to the presence of cargo or otherwise, the fumigation were rendered inefficient or diffusion slow. Forty-one dead rats were found on search after the fumigation.

The ship arrived late on May 2nd. Case 7 occurred on May 6th and the precautionary fumigation of quarters was made on May 3rd. I am of opinion that nobody was infected after these precautionary measures. Three cases from the starboard forecastle bunked in close proximity to one another suggests the possible direct infection of Cases 6 and 7 through fleas from Case 1 without the intervention of the rat. The point is of interest, as there is the bare possibility of reinfection of the forecastle before the ship was discharged of cargo and finally fumigated. I think, however, this had not occurred.

The measures taken were completely satisfactory: in the result no human or rat infection gained the shore. The ship left the district on May 17th, outward bound.

The Outbreak on the s.s. Matiana.

The s.s. *Matiana* from Bombay *via* the Cape arrived at Gravesend on August 13th last, and nine cases of plague were reported to have occurred since the ship left Delagoa Bay; six of the native crew had died and three were removed convalescent to Denton Hospital. On August 14th a tenth native of India was taken ill and died of plague on August 16th in Denton Hospital.

The ship left Bombay, the port of lading, on June 9th, and was at Delagoa Bay from June 26th to July 6th. Cargo was discharged there. As a preliminary to discharge the foreholds Nos. 1 and 2 were "fumigated" by means of cylinders of gas thrown into them.

The list of crew attacked is as follows:—

—	Rating.	Age.	Reported ill.	Bubo.	Result.
1	Saloon boy.	30	July 16.	Axillary and supra-clavicular.	Recovered.
2	Lascar.	19	,, 16.	None.	Died July 22.
3	Punkah boy.	22	,, 17.	,,	,, ,, 21.
4	Lascar.	20	,, 17.	Right femoral.	,, ,, 22.
5	,,	27	,, 17.	Right submaxillary.	Recovered.
6	Coal-trimmer.	20	,, 22.	Left groin and neck.	Died July 25.
7	Lascar.	19	,, 24.	None.	,, Aug. 2.
8	,,	22	,, 25.	,,	Recovered.
9	Serang.	29	,, 28.	,,	Died Aug. 1.
10	Lascar.	—	Aug. 14.	Right axillary.	,, ,, 17.

It is probable that Case 8 who only presented severe bronchitis while in hospital, had not been plague-infected at any time of his illness. Pneumococci were plentiful in his sputa and *B. tuberculosis* and *B. pestis* absent. It will be seen that 17 days separate the first group of 9 cases from the tenth case. All the cases except No. 6 occurred amongst that

part of the crew berthed in the forecastle. The firemen and coal-trimmers were berthed in the 'tween decks amidships on the port side. All the native crew was Mahommedan, and the native galley was situated in the starboard alleyway to the forecastle. The firemen therefore would have dealings with the forecastle and its occupants from time to time, and this association may account for the infection of a single fireman, although, on the other hand, the mortality of rats and its distribution show that the ship from stem to stern was plague-infected in the holds.

The port forecastle, devoted to saloon boys, was only separated from the sailors' quarters in the starboard forecastle by open battening. Six of the 10 cases occurred in the sailors' quarters and only 2 among the saloon boys. The case in the serang, who was lodged in the starboard alleyway in quarters bounded on the one hand by the forecastle and on the other by the native galley, brings the proportion to 7 sailors and 2 saloon boys. The point is a small one, but the list to starboard in case incidence is paralleled by the location of the native food in preparation and storage.

Comparative immunity among the saloon boys may be due to the fact that their meals are partly taken in the saloon quarters and much of their time spent there, away from the forecastle.

Rats and Fumigation.

After 3 deaths, on July 22nd the forecastle was thoroughly cleared of all contents and the crew camped on deck. Ten dead rats were found during this clearance in the forecastle and one in the native food store, which is situated ahead of the collision bulkhead and is without ingress to rats or human being save by a trap in the floor of the starboard forecastle. One of the ten dead rats was found lodged in the bundle of clothing which had belonged to a lascar dead of plague.

Under the direction of Dr. W. L. Mayer, the ship's surgeon, the forecastle was washed down with disinfectant and fumigated, first by means of formalin, then by sulphur burned in liberal quantity. The native clothing and bedding were steamed in a tub. These measures were evidently effective as regards the infection in the forecastle which caused and resulted from the first nine cases.

The occurrence of the tenth case on the day after arrival in the Thames showed, however, that infection was still present on the ship up to the time of arrival. Smears taken after death from this case gave abundant bipolar bacilli, confirming the diagnosis of the epidemic, which, however, was not in doubt in view of the abundant clinical and historical evidences.

The cargo consisted largely of oil seed and myrobalans, attractive to rats and shipped at Bombay.

During the homeward voyage 42 rats had been trapped, in addition to those found dead in the forecastle. In the discharge of the cargo in Gravesend Reach 77 dead rats, mostly of the *Mus rattus* (black rat) denomination, were found. *Mus decumanus*, however, existed on board; a specimen was trapped and examined for plague at the hospital with negative results.

A rat plague infection of the holds must, on the facts, be assumed to have occurred at Bombay. It was a month after leaving Bombay and a week after leaving Delagoa Bay that the first human case occurred.

At Delagoa Bay a fumigation of the forehold was attempted in the presence of cargo, and the distribution of the rat mortality in the holds as disclosed on the discharge of cargo at Gravesend is as follows:—

Hold No. 1, 5; No. 2, 9; No. 3, 34; No. 4, 29.

Why this paucity of dead rats in Nos. 1 and 2, the "fumigated" holds, as compared with Nos. 3 and 4, the unfumigated?

The suspicion is very strong that in this fumigation rats were evicted from holds Nos. 1 and 2 rather than killed, and that, as suggested in the case of the *Sardinia*, these took up their quarters in the forecastle, which afforded cover and food.

The details of the measures taken at Gravesend are the same as in the case of the *Sardinia*, save that the barges were only permitted to lie alongside during actual work, and no debagging was considered necessary except from sacks which on scrutiny were found holed so as to permit entrance, and thus transfer, of a rat.

No human infection took place on board after the preliminary fumigation at Gravesend, and I believe no infection reached the shore except in the removals to the disinfecting station and hospital.

Remarks.

Plague-infected ships are rare arrivals in the Thames. It is significant that two outbreaks in quick succession should have appeared, and both in ships in which partial fumigation had been carried out. If, as I assume, there is a direct connexion between these partial fumigations and the human outbreaks, two points of great importance arise.

First, the ship's structure and possible paths of communication for rats must be closely investigated in connexion with any partial fumigation of a ship and the necessary protection against invasion of living quarters by rats arranged for. No fumigation of holds should be attempted without simultaneous fumigation of living quarters to which a possible path of escape for rats exists.

Secondly, had the human cases not occurred, would the rat infection existing on the ships have been disclosed at the moment for most effective action? Rat infections do pursue their course in undisturbed holds both with and without eventual recognition of the fact of their occurrence.

In practice the present safeguard against the landing of infected rats which may exist on ships from infected ports is the power of port sanitary authorities to put questions and make examinations concerning rat mortality and sick rats. The time for putting the questions is necessarily protracted over the whole period from the ship's arrival to completion of discharge of cargo, and in the absence of repetition of the questions from day to day a discovery of importance may not be disclosed at the proper time for effective action, if at all.

As an additional safeguard it seems desirable that the duty of ascertaining as far as possible the state of the ship with regard to rats both on the voyage and during discharge of cargo, and of immediate notification to the port sanitary authorities of sick or dead rats found, be imposed on owners and officers or other persons in charge of ships as part of the Orders of the Local Government Board relating to plague.

Greenwich.

THE PROPOSED MIDWIVES BILL FOR IRELAND.

A BILL to secure the better training of midwives in Ireland and to regulate their practice was introduced in the House of Commons on Nov. 12th by Mr. Duke, the Chief Secretary for Ireland, and ordered to be printed. It is briefly known as the Midwives (Ireland) Bill. 1917, contains 29 clauses, and closely follows the lines of the Midwives (Scotland) Act of 1915, which was itself modelled on the English Act of 1902 with certain alterations and additions resulting from the experience gained in the administration of the English Act during a period of more than 12 years.

It will be of help to our readers to note the provisions which appear in the Irish Bill but not in the English Act nor (unless so specified) in the Scottish Act.

Clause 2 (1) (b) and (c), and (2).—A claim for the Irish certificate may be made within two years from the commencement of the Irish Act by a woman who holds a certificate in midwifery granted after training and examination by any lying-in hospital recognised as a training school for midwives by the Local Government Board, or by a woman who has been a permanent midwife of a workhouse or a dispensary district in Ireland.

Clause 3 (1), (2), and (3).—The Central Midwives Board for Ireland is to consist of thirteen persons, of whom eight are to be registered medical practitioners, four are to be appointed by the Local Government Board (two of whom are to represent the County and County Borough Councils), and one is to be a certified midwife appointed by the Lord President of the Council. As in the Scottish Act, the members of the Board are to be paid in respect of their attendance reasonable expenses on a scale approved by the Privy Council.

Clause 6 (1) (a) and (b).—The Board is authorised to suspend a midwife from practice in lieu of removing her name from the roll, and the local supervising authority is authorised to suspend from practice, until the case has been decided, a midwife against whom a prosecution has been taken for a contravention of any of the provisions of the Bill. (In the Scottish Act.)

Clause 6 (2).—The local supervising authority is authorised in certain cases to pay reasonable compensation for loss of practice to a midwife who has been suspended. (In the Scottish Act.)

Clause 7 (1), (2), and (3).—The Board is authorised to pay all or any part of the expenses incurred by a midwife who may be required to appear before them in her own defence. All forms and books which midwives are required to fill up or use are to be supplied free of charge by the local supervising authority or the Board. (In the Scottish Act.)

Clause 8.—Where the name of a midwife has been removed from the roll the Board may prohibit her from attending women in childbirth in any other capacity. (In the Scottish Act.)

Clause 9.—Where a midwife's name has been removed from the roll she must within 14 days after notification thereof surrender her certificate to the Board under a penalty not exceeding £5. (In the Scottish Act.)

Clause 10.—A notice of the removal from the roll of the name of a midwife is to be given to the Local Government Board as well as to the local supervising authority.

Clause 11.—Provision is made for admission to the roll on reciprocal terms of a woman trained and certified after examination as a midwife in any other part of H.M. Dominions where there is an Act or Ordinance for the certification and registration of midwives under a public authority. (In the Scottish Act.)

Clause 12.—A woman whose name has been removed from the roll may appeal within three months to the High Court or to the Local Government Board. In England the appeal is to the High Court only, and in Scotland to the Court of Session only. It is hardly conceivable that the Local Government Board should be given coördinate jurisdiction with the High Court either in England or in Scotland, where the powers of the Judicature and of the Executive Government are not alternative.

Clause 13.—The Board's accounts are to be audited by an auditor appointed by the Local Government Board. In the English Act the Board appoints its own auditor, and in the Scottish Act the auditor is appointed by the Secretary for Scotland. Precepts for payment of the deficiency may be issued to the local supervising authorities in proportion to the rateable value of their districts. In England the precepts are levied in proportion to the number of midwives who have given notice during the year of intention to practise within the various areas, and in Scotland the precepts are to be in proportion to the populations of the various districts.

Clause 17.—For the purpose of exercising the powers of supervision over midwives, powers of entry at reasonable times and on certain conditions are given to the local supervising authority in respect of premises believed to be a lying-in home conducted for profit. (In the Scottish Act.)

Clause 21.—Power is given to local supervising authorities to contribute towards the training of midwives within or without their respective areas. (In the Scottish Act.)

Clause 22.—Provision is made for the payment by the local supervising authority of fees on a scale to be fixed by the Local Government Board to medical practitioners called in to the assistance of a midwife under certain conditions. (In the Scottish Act.)

Clause 23.—County councils may appoint a registered medical practitioner with qualifications to be approved by the Local Government Board to be their medical officer for the purposes of the Bill, and in a county borough the medical superintendent officer of health shall be the medical officer for the purposes of the Bill.

Clause 29.—This clause contains a curious misprint showing that the bulk of the Bill has been copied verbatim from the Scottish Act, and provides that the Act may be cited as the Midwives (Ireland) Act, 1915—an obvious error for 1918.

Comparing the Irish Bill with the Scottish Act, from which it is taken, it will be observed that the chief difference consists in the much larger powers given to the Local Government Board in Ireland. This is no doubt due to local conditions, which are in many respects quite different from those obtaining in England or Scotland. The name "Local Government Board" does not appear in the English Act at all, and in the Scottish Act it is found only in Sections 22 and 23 dealing respectively with the scale of fees to be prescribed for the payment of medical assistance in cases of emergency, and the annual report of the medical officer of every local supervising authority which is to be sent to the Local Government Board. Clause 12 contains a principle open to grave objection, and its amendment, limiting jurisdiction to the High Court only, is suggested as a wiser course. There is no clause in the Irish Bill or Scottish Act authorising a county council to delegate its powers to any district council within its area, as in the English Act. The Bill provides that the rules regulating the practice of midwives shall be communicated to the General Medical Council for its observations before they are officially approved by the Privy Council. It is proposed that the measure shall come into operation on Jan. 1st, 1918.

MANUFACTURE OF DRUGS IN INDIA.—Writing on the conditions in the Madras Medical Stores, perhaps the largest of its kind in India, the *Madras Mail* remarks that the mistaken economy in medical matters which led to the breakdown in Mesopotamia is exemplified in the case of such stores. At present, in addition to meeting the ordinary requirements of the Presidency, the superintendent has to supply drugs to the numerous special hospitals and convalescent depôts in the country. Owing to the embargo on freight, he has been obliged also to break new ground in the direction of manufacturing in the country drugs which until lately used to be imported. Careful inquiry has been undertaken into the possibilities of growing in India various medicinal plants, and search is being instituted for mineral substances used in the manufacture of drugs. Madras hopes to be able to make its own disinfectants, more especially of the phenol group, and also starch from rice. The possibilities of making glycerine are also being investigated.

Correspondence.

"Audi alteram partem."

EPSOM COLLEGE.

To the Editor of THE LANCET.

SIR,—I would again ask you to allow me to make an earnest appeal to your readers for contributions to the Royal Medical Foundation of Epsom College. This Foundation provides an education of the highest class, together with maintenance, clothing, and pocket money, for 50 necessitous sons of medical men, and gives pensions of £30 each to 50 aged members, or widows of members of the medical profession in reduced circumstances. In order to maintain the full numbers of beneficiaries a sum of about £4500 must be obtained by annual contributions.

I appeal to all medical men as well as to members of their families who do not already contribute regularly, to assist the Council at this particularly difficult time by becoming annual subscribers. In the case of those who do subscribe, I earnestly request them to increase if possible their regular contribution during the period of the war, and subsequently for two or three years at least. An increased number of applications is sure to be received as a consequence of the war. Already the governors have elected as a Foundation Scholar the son of a medical officer who was killed in action on board H.M.S. *Good Hope*; and there are at this time on the list of candidates the son of a medical man who was lost in the *Royal Edward*, when she was torpedoed in August, 1916, and the son of another medical officer who was killed whilst in command of a battery in France last April.

I am, Sir, yours faithfully,

HENRY MORRIS.
Honorary Treasurer of Epsom College and its Royal Medical Foundation.

8, Cavendish-square, London, W., Nov. 27th, 1917.

THE THEORY OF "BACK PRESSURE" AS A CONSEQUENCE AND AS A CAUSE OF HEART FAILURE.

To the Editor of THE LANCET.

SIR,—There come periods when newer acquisitions are apt to engross the attention to the prejudice of older possessions, and among the latter I would instance the doctrine of "back pressure" in its relation to heart failure; this of late has been called in question for reasons which, to me, appear to be more than inconclusive.

Heart failure declares itself when under the normal conditions of life an effective circulation ceases to be maintained.

The object of this letter is to consider one particular form of heart failure—namely, that caused by valvular disease; to take note of the phenomena of back pressure as these are developed by the central impediment; to find in these phenomena both an expression of heart failure and a measure of its degree; and, finally, to show how back pressure reacts upon the heart muscle itself, impairing its functional activity, and thus augmenting the cardiac incompetence. In this last respect it is claimed that back pressure, itself a *consequence* of heart failure, becomes secondarily an actual *cause* of heart failure.

I. *Back pressure as a consequence of heart failure from valvular disease.*—Let us take as an example of this disease the button-hole mitral. The result of the thickening and fusion of the valve segments is that a resistance is interposed in the course of the circulation of the blood through the chambers of the heart. This resistance works by the development of a reactive pressure which, by preventing the forward delivery of the blood, leads to the accumulation of blood behind the obstruction. The effect of this accumulated (residual) blood is first felt by the heart itself as a distending force, but in the course of things as it outsteps certain reserve powers of the heart, termed compensatory, it is projected backwards into the great systemic veins and is felt ultimately in the farthest venules and in the capillaries themselves. For brevity's sake I have not followed the effects of the button-hole mitral through the lesser circulation; it is unnecessary. This is back pressure; its cause

is the central impediment; its working is as retrograde as the flight of the Parthian arrow: is it not well named?

To see the above-named effects as *pressure* effects, it will be simplest to observe the sequence of events which arises when a vein is tied or otherwise obstructed. What happens? The movement of the blood in the veins is stayed at the obstruction and that portion of the *vis a tergo*, which until that moment had been expending itself, first, in developing the liquid momentum of the flowing blood, secondly, in overcoming the surface resistance of the vessel walls, now, as the blood comes to a standstill, appears as a distending force and the vein swells immediately behind the block. This process repeats itself, as, successively, the oncoming blood is held up, until the venules and capillaries are reached. If the distending force is able to push past the obstruction, well and good; if it cannot the rise of pressure and distension go on increasing until a maximum [1] is reached and the *vis a tergo* is counterbalanced by the stretch of the tissues. Under the raised pressure the capillaries, in particular, ooze in excess of the drainage capacity of the lymphatics, and the part becomes more or less water-logged. In this area of engorgement, of stasis, of high blood pressure and of exudation (œdema), the functions of the part are brought more or less to a standstill and disintegration preponderates, completing the picture of relative death occasioned by the block.[2] Fortunately for the part there are few if any closed vascular circuits, in the sense of being quite shut off from neighbouring areas; in the vast majority there are collateral channels which interconnect more or less freely. These anastomotic channels constitute a reserve mechanism which safeguards the vitality of the blocked area by relieving the congestion therein and gradually re-establishing the circulation. The operation beginning at the periphery proceeds centrally, and we may note that it is the raised blood pressure, itself a secondary effect of the venous obstruction, which now comes to the rescue and opens up the collateral vessels.[3] Incidentally, we may note that this raised blood pressure is not always so intelligently directed, for whilst it always tends to open up the collateral paths it also tends at the same time to force the blockade, and sometimes with success, as in the case of thrombosis. But the local relief thus secured is at the imminent peril of the whole, since the potentiality for evil of the embolus is of far greater moment than the local congestion. But this is by the way. After such manner does the venous obstruction work, and it matters not how small or how large is the vein involved the process is always the same—viz., by the backward projection of a raised intravenous pressure.

To come back now to the obstruction placed centrally in the heart, again the *modus operandi* is exactly the same, and under its influence the right heart and the whole systemic venous system tend to become congested and stagnant. As a preliminary to this (the block being at the mitral orifice) there will be the congestion of the veins, capillaries, and arteries of the pulmonary circulation, in particular of the hinder and lower parts of this circuit. In one respect, however, an important difference obtains between the effects of the block in the vein and the block at the heart, for whereas in the former, even though the obstruction be in the inferior or superior cava, anastomosis always gives local relief, more or less, in the latter, anastomosis cannot serve, since the whole venous system is involved. There is one exception to this statement: it holds when the cardiac obstruction arises in fœtal life, before the completion of the interventricular and interauricular septa; in that case a kind of anastomosis is secured by the prevention of the completion of the septa and by the maintenance of the patency of certain fœtal channels. By these means life may be made possible though upon a lower level.

I am unable to quote figures as to the exact values of the intravenous pressures in heart failure from valvular disease. In health physiologists put the pressure in the large veins at the root of the neck at 0 to minus 0·8 mm. Hg [4]; in disease, in the absence of precise records, we may, I think, assume safely that the pressure is always raised whenever there is fullness of the veins at the root of the neck—e.g., a distended external jugular; for if there were the smallest negative pressure at the outflow of the external jugular, or even a zero pressure there, the blood could not be dammed back so as to distend the external jugular and lift the skin over the vein; there must be a positive pressure in the vein to do this. The distended external jugular will therefore always indicate a plus intrathoracic venous pressure unless there be evidence of local compression of the vein.

II. *Back pressure as a cause of heart failure.*—In the ordinary way we do not speak of back pressure as the cause of heart failure, but as its expression or consequence and in the main this is its most important aspect; now, however, we are to consider how it may be a definite cause of cardiac incompetence. The first roots of the systemic venous system are constituted by the coronary sinus and the coronary veins which open into it, and when back pressure develops as a result of cardiac obstruction these veins will, in a sense, be the first to feel the effects of back pressure, the first to suffer from the general venous stasis. But we have seen that vascular stasis involves a lowering of the vitality of the congested tissues, this can hardly be called in question, consequently the heart muscle, impaired in its nutrition, must suffer in its driving-power, and therewith another form of heart failure adds itself to the pre-existing failure from *mechanical obstruction*. We have here a good example of the vicious circle, so-called.

It is strange that a modern school of cardiologists would restrict the essential cause of heart failure to a functional impairment of the heart muscle; this is about as reasonable as to say that bowel failure can only result from functional impairment of the intestinal musculature, whereas we know that a mechanical obstruction—e.g., a strangulation—of the intestine or an impacted fæcal mass may defy the most healthy and vigorous peristalsis, threatening death unless the obstruction be removed. Here the failure is as mechanical as is its relief. True, a paralysis of the bowel may bring about a failure as complete and as fatal in the absence of all mechanical obstruction, but this is no argument against the other variety of bowel failure.

In the foregoing the obstructing valve has received chief attention, but the leaking valve leads to exactly the same results, for the regurgitation develops a reactive pressure as effective as the simple passive resistance of a narrowed orifice in holding up the circulation.

In conclusion, it must be said that however much modern advances in cardiology may have in store for us, they have not so enriched us up to the present that we can afford to forgo those older standards which have stood the test of time. Amongst these standards we must place those back-pressure effects with which we are all familiar; and we must insist that to belittle their significance is not in accordance with clinical experience, that *argumentum ad ægrotantem*, which, in dealing with the sick man, his griefs, their cure or their relief, must ever speak the final word.

I am, Sir, yours faithfully,

HARRINGTON SAINSBURY.

Wimpole-street, W., Nov. 21st, 1917.

[1] According to Hallibürton, the complete closure of the veins leading from a capillary area may quadruple the capillary pressure (Physiology, edition 1917, p. 278); this pressure, since we are now dealing with a problem in hydrostatics, should represent the venous pressure also.

[2] Dr. Charles Bolton (Observations on the Pathology of Cardiac Dropsy, Oliver Sharpey Lectures, 1917) attributes the chief part of the œdema to the disintegration of the capillary wall.

[3] With the re-establishment of the circulation the raised blood pressure, of course, falls. Cf. the experiments of C. Bolton, loc. cit.

[4] Starling: Physiology, edition 1915, p. 817.

THE VALUE AND LIMITATIONS OF SANATORIUM TREATMENT.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 24th two important matters were dealt with.

(1) In Professor Sims Woodhead's and Mr. Varrier-Jones's article a statement was made, to which you referred in your leading article, on which I should like some further evidence.

"It is stated on very good authority that the results of sanatorium treatment vary according to the class of person treated, and that amongst the well-to-do the results of treatment are three times as good as are those obtained with the working men."

I should be very glad if the facts or statistics could be published on which this statement was founded, as it certainly does not accord with my general impression and is absolutely contradicted by the Australian Commission's figures, published in a recent number of your journal, where it was shown that in Australia 222 per 100.000 persons of independent means died from tubercle in 1911, as against only

200 per 100,000 among miners, the highest death-rate among the working-class, and only 36 per 100,000 amongst dependents. A statement so far-reaching and important as that the rich recover easier demands very accurate proof.

(2) Concerning Dr. Louis Cobbett's letter *re* Success and Failure in the Treatment of Tuberculosis. While quite agreeing with him that the time has not yet arrived for the general use of prophylactic injection, and believing, as he does, that it must rest entirely on its own foundations, there are, in addition to the points he has suggested, two further points which at the present time give one a hope that it may be a definite remedial procedure. The first is, so far as I have been able to observe, that lupus tissue which has been attacked and has recovered seems to be immune from further invasion, the invasion always occurring at the free edge of the disease. Secondly, the application of tuberculin to the infected conjunctiva in repeated doses, at least in my hands, has produced such a condition of resistance that ulceration, or breaking down, though frequent previously, does not recur. Freedom from relapse has been demonstrated practically in all cases tested, most of them for a period of over two years.

I am, Sir, yours faithfully,

Middlesbrough, Nov. 27th, 1917. HENRY A. ELLIS.

HYSTERICAL DEAFNESS IN SOLDIERS.

To the Editor of THE LANCET.

SIR,—The questions raised in the interesting paper by Major A. F. Hurst and Captain E. A. Peters in THE LANCET of Oct. 6th are of the greatest importance. It is certain that many applications for compensation will be made by soldiers who claim that their hearing has been injured or destroyed by the explosion of mines, shells, or hand grenades, or by prolonged gun-fire. There may be great difficulty in adjusting these claims as the hearing power of recruits has not been systematically examined. Thousands of men suffering from deafness—with or without otorrhœa—have been admitted to the Army. Sohier Bryant[1] gives some startling figures regarding the number of "ear" cases in the various zones of the French Army.

Major Hurst and Captain Peters state that organic disease or injury of the ear of sufficient intensity to produce severe cochlear deafness is invariably accompanied by loss of vestibular reaction. They apparently apply this law not only to cases of shell deafness but also to those of neuro-labyrinthitis due to epidemic cerebro-spinal meningitis. The logical conclusion is that if, in testing a case of shell deafness, or neuro-labyrinthitis we find that the vestibular reactions to the rotation and caloric tests are normal, we may conclude that the deafness is either hysterical or malingered. If this is really true it immensely simplifies the work of otologists in examining such cases. I, however, agree with Dr. P. McBride in thinking that we must hesitate a little before accepting this delightfully simple test as a reliable one for the purpose of excluding organic injury or disease of the sound-perceiving apparatus. It is a pity that Major Hurst and Captain Peters do not give an account of any cases of "explosion" injury of the ear in which they have found loss of the vestibular reaction.

We must confess that as yet we do not know the exact pathology of "shell" or "explosion" deafness. We can, of course, observe ruptures of the tympanic membrane when these are present, but we know that such ruptures, even when associated with hæmorrhage into the middle ear spaces, will not account for the marked or absolute deafness met with in cases of severe shell deafness. There are three other changes which may account for the condition: (1) Rupture of, or hæmorrhage into, the membranous labyrinth; (2) hæmorrhage into, or rupture of, the cochlear nerve or some of its fibres in the internal auditory meatus; and (3) degenerative neuritis of the nerve structures of the cochlear apparatus—i.e., Corti's organ, spiral ganglion cells, &c. In a paper on this subject at present appearing in the *Journal of Laryngology* (in conjunction with Captain John Fraser, R.A.M.C.) I have shown that, out of four cases of explosion injury of the ear microscopically examined, (1) rupture of the delicate neuro-epithelial sacs and tubes of the membranous labyrinth was not found in any case. (2) Hæmorrhage into the cochlear nerve at the fundus of the internal meatus was present in three out of four cases. Such a lesion is quite capable of producing deafness. (In one case there was a large plug of wax in the external meatus which seems to have protected the structures of the middle and inner ear from injury.) (3) An early stage of degenerative neuritis was probably present in one case in which the injury was due to the explosion of a hand grenade close to a soldier. (Microscopic examination of a case of shell deafness which dies from other causes some months or years after the onset of the deafness would give more reliable results as to the presence or absence of degenerative neuritis.) From these rather meagre observations we may at least state that there is some pathological basis for explosion deafness. I must, however, admit that, as all the cases examined by Captain Fraser and myself were admitted to the casualty clearing station in a state of profound shock and died shortly after admission, no vestibular or cochlear tests were carried out.

I can, however, bring forward the case of a congenital deaf-mute in which microscopical examination of both inner ears showed that Corti's organ in all coils was so malformed that hearing was almost abolished, while the vestibular structures were normal. The caloric reaction was tested on both sides some days before the death of the patient and a normal response was obtained. Another case which throws some light on this subject was that of a patient who had suffered from chronic middle-ear suppuration and absolute deafness on one side for many years before death. (The vestibular reactions unfortunately were not tested as the case came under observation before such examinations became a routine part of otological work.) Microscopic examination of the labyrinth showed complete obliteration of the whole cochlea by new bone formation and atrophy of the cochlear nerve. The structures of the vestibule and semicircular canals along with the vestibular nerve, on the other hand, were comparatively well preserved. These two cases show that the function of the cochlea may be entirely lost while the vestibular apparatus is normal (Case 1) or shows but slight alteration on microscopic examination (Case 2). Those who have had experience in carrying out the functional tests of the cochlear and vestibular apparatus in cases of otosclerosis will have come across instances in which the patient is extremely deaf (mixed middle and inner ear deafness), whereas the vestibular apparatus responds normally to the rotation and caloric tests (Fraser and Walker[2]). These observations show that the cochlear apparatus is not always normal when the vestibular apparatus responds to the caloric test.

Professor A. A. Gray has shown[3] that in the evolution of the animal kingdom the vestibular apparatus appeared long before the cochlear apparatus. The former is present and fully developed in the lower fishes, whereas the cochlea only begins to appear in the reptiles and amphibians and reaches its full development in the higher mammals. It is usually admitted that organs such as the vestibular apparatus which appear earlier in the scale of evolution have greater resisting powers or greater powers of recovery than those which, like the cochlear apparatus, are developed at a considerably later period. I know that your correspondent Dr. Dan McKenzie does not agree with this view.

Let us, however, look at the matter from the point of view of ordinary anatomy and physiology. There are two moveable areas in the rigid bony capsule which surrounds the labyrinth. These areas—the oval and round windows—are situated in the party wall which separates the middle from the inner ear. The former—the oval window—communicates with the perilymph space of the vestibule just at the point where the scala tympani of the cochlea begins. The latter—the round window—lies at the other end of the perilymph space of the cochlea. As the labyrinth capsule is rigid and as fluid is incompressible we must conclude that movements of the perilymph, produced by vibration of the stapes in the oval window, can only occur in that area which lies between the two movable windows. It would seem therefore that a "blow" to the ear caused by a sudden great movement of the atmosphere following an explosion is transmitted to the oval window and can only affect the column of fluid in the cochlea. This helps to explain the greater vulnerability of the cochlear apparatus. We must, however, admit that a very violent explosion close to a soldier can shatter the skull, including the temporal bone. The "rigidity" of the labyrinth capsule is therefore only a relative term.

[1] Journal of Laryngology, Rhinology, and Otology, November, 1917, p. 338.

[2] Journal of Laryngology, November, 1914, p. 519.

[3] Otosclerosis, Lewis and Co., London, 1917, p. 55.

I do not deny that there are many cases of hysterical deafness following shell explosion or prolonged gun-fire. Major Hurst and Captain Peters have given us two very interesting instances of this condition. What I do deny is that we can accept without further consideration the law laid down by these writers that the presence of normal vestibular reactions excludes the possibility of serious injury to the cochlear apparatus.

We must conclude that, while it is very difficult for Major Hurst and Captain Peters to prove their contention, it is by no means easy to show that they are wrong.

I am, Sir, yours faithfully,

Edinburgh, Nov. 26th, 1917. J. S. FRASER.

PROPHYLAXIS IN VENEREAL DISEASE.

To the Editor of THE LANCET.

SIR,—I am not sure that I understand Sir Bryan Donkin's letter in your issue of Nov. 24th. I did not imply, at any rate I did not mean to imply, that calomel cream, if used in sufficient strength (30 per cent.), is not effective as a prophylactic in syphilis. As a fact it is efficacious even hours after actual inoculation. Since it is a germicide, it is probably effective also against gonorrhœa if it be used before the cocci have entered the urethra. I merely insisted that any antiseptic, quickly used, is equally efficacious. Sir Bryan Donkin questions whether permanganate of potash would prevent syphilis if abrasions were present on the penis. I can only answer that when permanganate was used not a single case of venereal disease occurred during many months among some thousands of men dwelling in a community where venereal disease was rife. I presume, even when abrasions are present micro-organisms do not instantly sink below the surface. I am not alone in my experience, nor am I the first to use this method. Since writing to THE LANCET I have learned that some years ago a surgeon, who had care of a large body of men in one of our dependencies, provided his charges with pill-boxes containing permanganate in crystals and with instructions as to use. Thereafter he also saw not a single fresh case of venereal disease I do not think either of us is entitled to credit, except in so far as we had the courage of our convictions. It is obviously the correct procedure, when so limited and accessible a part of the body as the penis has been exposed to infection, to disinfect at once—to practise ordinary surgical cleanliness. Again, it is obviously right from the moral standpoint to prevent disease (i.e., poisoning), especially when the innocent suffer with the guilty.

The point I especially wished to make is this: Calomel cream is not the only nor, as far as I am able to judge, the most universally useful means of prophylaxis. It is seldom at hand. I do not know to what extent it has prevented disease among controlled bodies of men. I am sure it has had next to no prophylactic influence among the general public. Men do not seek medical advice before going into danger, nor afterwards till too late. On the other hand, permanganate or some other antiseptic is found in half the homes of England. Its use is universally understood. If it were known that simple sponging with a solution of it prevented venereal disease the knowledge would quickly spread. We might hope, if not entirely to abolish venereal disease, to make it as rare as typhus or typhoid, and by the same means—suitable sanitation. Legislation, so hard to obtain and so ineffective when obtained, would be unnecessary. I am, Sir, yours faithfully,

Southsea, Nov. 25th, 1917. G. ARCHDALL REID.

SUCCESS AND FAILURE IN THE TREATMENT OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I am much indebted to Dr. Louis Cobbett for his excellent and pertinent criticism of my views as to the methods of dealing with the tuberculosis problem, in your issue of Nov. 24th. Before taking his criticisms in order I would like him clearly to understand that I desire to use any and every means both to prevent tubercle bacilli obtaining access to the human and the bovine body, and, if they do obtain access, to make sure that the seed falls on stony ground, and that the tissues of the body are able to destroy it. Dr. Cobbett accuses me of ignoring the nature of the case. If I do not understand the nature of the case I ought to, having recently read his excellent book on the problem. He instances the special methods of dealing with diseases such as malaria and bubonic plague, where the infection is transmitted by animals which can be killed whether they are infected or not. He is quite right. The animals which transmit tuberculosis and pneumonic plague cannot be exterminated, but I do not ignore that any more than he does. These instances only emphasise the special difficulty of preventing individuals, human and bovine, from being infected.

In his book Dr. Cobbett insists on the importance of the size of the dose of bacilli, which gain access to the host, in producing disease, and also on the virulence of the infection. In all animal experiments the test of immunity is the capacity to withstand the inoculation of large doses of bacilli which are virulent for the particular animal—viz., of bovine bacilli for the ox and the rabbit and of both human and bovine for the guinea-pig. Now, I am quite aware that complete immunity has never been produced against the tubercle bacillus by inoculations of tuberculins of various sorts, but relative immunity has. Just as relative immunity has been produced in human beings against the entericas, bubonic plague, and many other diseases, but not absolute immunity; for instance, the relative immunity which is generally effective against bubonic plague is quite useless against the overwhelming infection of pneumonic plague. I do not think any method of inoculation with tuberculin will be effective against an overwhelming infection of tubercle bacilli in man, but fortunately cases of overwhelming infection are relatively few. The comparatively great protection to bovine bacilli produced in oxen by inoculation with living human bacilli encourages one to hope that an equally effective dead antigen is not beyond the bounds of possibility. It was just the ineffectiveness of the ordinary tubercular antigens that induced me to try for a better one; hence the benzoyl-chloride solution. Let me state my position with regard to the human problem again. For practical purposes it may be assumed that while everyone gets infected with tubercle bacilli only a small percentage develop disease from this infection. Presumably—I think a justifiable presumption—the majority do not develop the disease because their resistance is normal. If the resistance of those who would develop the disease could be made and kept normal the problem would be solved, for only those who got an overwhelming infection would develop the disease. I think there is reasonable hope of producing this relative degree of immunity with the benzoyl-chloride solution or other preparation of the tubercle bacillus, for I know that I can produce a sufficient degree of immunity in chronic pure infections of the tubercle bacillus, so that the patient completely and permanently recovers from his disease. I know, too, that this benzoyl-chloride solution produces its effects in very small doses. I have produced distinct focal and general reactions in pulmonary tuberculosis with a dose of 0·00000005 mg. The initial dose for these cases must not be larger than 0 0000001 mg. The highest dose that need usually be attained is 0 01 mg., while frequently 0 001 mg. is quite sufficient. So that if reactions are any criteria this antigen is much the most powerful ever produced. Further, I know that I can with precision restore delicate members of tubercular families, who are showing no physical or X ray signs of the disease, to ordinary vigorous health with this preparation. Have I not then some presumptive evidence that the benzoyl-chloride solution is a powerful and efficient antigen, and that it gives a reasonable hope of putting up a subnormal resistance to normal? I have done practically no animal experiments with the preparation. I would be exceedingly obliged to Dr. Cobbett if he would help me in this direction.

I quite see the great difficulty of proving absolutely the efficacy of preventive inoculation. The only proof that would satisfy myself would be the reduction of case incidence and mortality. In order to do this the trial would have to be large and prolonged. What arguments can be used to persuade those who have been exposed to virulent infection or have inherited a low resistance, such as members of tubercular families, to undergo the process? First, it can do them no harm, for it can be performed safely in those who are already infected. Secondly, it gives them a fair chance of making sure that their resistance is normal, so that they will be able to overcome an infection. Thirdly, if

they have got an active infection it will discover it, by the development of general or focal reactions or both, in its early stages when it can be certainly cured and with comparative ease. I should, of course, like to have compulsory preventive inoculation, but I quite realise that it is not practical politics at present.

Let me take now the prophylactic measures which Dr. Cobbett considers will be effective.

1. The amelioration of the conditions of life of the poor. The figures of the tuberculosis mortality of the Dublin registration area for 1915 will throw some light on this point. They are:—

Professional and independent classes	1·84 per 1000.
Middle class	2·18 ,,
Artisan and petty shopkeepers...	3·11 ,,
General service class	3·61 ,,

These figures clearly show that improvement of hygienic surroundings will not solve the problem, for have not the professional and middle class sufficiently good surroundings?

2. The cure of early cases. If he means by early cases cases giving physical signs in a part of a lobe and with tubercle bacilli in their sputum, I think I am right in saying that by sanatorium methods of treatment, the only generally recognised methods, the large majority do not lose their tubercle bacilli and are therefore not cured. If he means cases with no tubercle bacilli how is he going to diagnose them? By tuberculin reactions?

3. The isolation of those who are acting as sources of infection. I quite agree with him. This will have to be done. I would like to know from him how many beds will have to be provided in Great Britain; at least 20,000 beds will have to be provided in Ireland.

Two questions to Dr. Cobbett and I have finished this unavoidably lengthy letter. Does he think he can by isolation cut off entirely the sources of infection? If not, does he not think my proposal to supplement this measure by an attempt to produce a normal resistance in everyone to the tubercle bacillus worthy of consideration and trial?

I am, Sir, yours faithfully,

University College, Dublin, Nov. 27th, 1917. W. M. CROFTON.

SIR RICHARD CROFT AND THE CASE OF THE PRINCESS CHARLOTTE.

To the Editor of THE LANCET.

SIR,—In connexion with your annotation on the above subject in THE LANCET of Oct. 27th and Dr. Hingston Fox's letter in your issue of Nov. 24th, the following excerpt from the diary of my grandfather, Sir Alexander Morison, who, as a younger man, was appointed Physician-Extraordinary to Her Royal Highness and to her consort, Prince Leopold, may be of interest. This note has not previously been published and is as follows:—

Dec. 19th (1817).—Called on Dr. Baillie, who says the death of the Princess Charlotte was quite unexpected and not easy to be accounted for: for 3 hours after her delivery she was very quiet; then restlessness came on, tossing about and catching breathing, her pulses quick, intermitting, and low. Nothing but cordials could be given as wine, brandy, sp. ammoniæ. On opening the body about 2 ounces of water were found in the pericardium, which appears to have been poured out during her struggles, as the pulse gave no indication previously and (there was) no disease about the heart. About a pint of coagulated blood was found in the womb, but she had lost rather less than is common before, so that, upon the whole, she could not have lost more than 12 ounces above the usual quantity.

Dr. Hingston Fox considers the conditions mentioned confirm Playfair's inference that the cause of death was pulmonary embolism. It is, however, I think, more probable that the pint of concealed blood lost after an exhausting and disappointing labour (for the silence of the infant, if nothing else, must have apprised the mother of its death) proved sufficient to aggravate the cardiac failure notified by the "quick, intermitting, low" pulse referred to. The concord between uterine and cardiac tone post partum, irrespective of the amount of hæmorrhage, is a notable and interesting phenomenon even now not sufficiently recognised, and the loss of uterine tone in this case is shown by its pint-ful capacity. The silent and slow accumulation of blood in such an atonic uterus, even after perfectly normal, and it may be quick, delivery, and even after temporarily good uterine contraction, when unobserved, has been the cause of many an obstetric tragedy. Had the uterus of the Princess Charlotte been rapidly emptied and grasped the tone of both heart and womb might have been restored, with, or it might even have been without, the aid of the cordials mentioned. Pulmonary embolism—that is, thrombosis of the pulmonary artery—so soon after labour is, I think I am correct in stating, a very rare event. Indeed, although I cannot claim expert knowledge in such a matter, I am unaware of the record of any such case. Death under the circumstances seems to have been attributable less to the quantity of blood lost, however, than to the diastolic atony of the viscera. The stomach of the Princess is also stated to have contained *three pints* of fluid,[1] which is still further evidence of that concord both in tone and in atony in the viscera post partum, influenced by the common nervous system, to which I have referred. Some of this gastric fluid was doubtless introduced in the agonised efforts at rescue, the organ being too atonic either to reject or propel it. A satisfactory vomit under the circumstances is frequently associated with an immediate increase of both cardiac and uterine tone.

One must have a deep sympathy with all our brethren of that period engaged in this tragic case (although the everyday tragedy of the cottage is quite as harrowing as that tragedy of the palace), and all concerned seem to have acted to the best of their ability and knowledge. Croft was a fashionable accoucheur of the time and had attended many women of social position, such as the Duchess of Devonshire. Baillie was a sage physician and a noble man, whose mere relationship to Croft would not have secured the attendance of the latter in the case, and Sims was a well-known obstetrician; but none of them seem to have discovered the flaccid uterus reaching as high as the umbilicus as shown post mortem[3] and their efforts at restoration seem to have been limited to stimulation and necessarily so, for the later oxytocics were unknown and the organotherapeutic provocants of general visceral tone still far off in the womb of the future. As regards the grounds for Wadd's assertion of Croft's having been a Doctor of Medicine he may have seen a portrait with the M.D. attached. One such was engraved by W. Holl from a picture by Hayter of the year 1801. It was dedicated to Croft's memory and bears a legend eulogistic of his skill and humanity. As Dr. S. D. Clippingdale states,[4] however, beyond the "chirurgus privilegiatus," mentioned in the *Alumni Oxonienses*, there is no evidence of his having had any other medical degree or qualification. I am, Sir, yours faithfully,

ALEXANDER MORISON.

Upper Berkeley-street, W., Dec. 1st, 1917.

THE CHRISTMAS APPEAL OF THE Y.M.C.A. TO MEMBERS OF THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—The members of our profession in all parts of the Empire have given so generously of their skill, time, money, health, and life for the wounded and sick of our Navy and Army that it would seem almost an insult to ask further of them. The appeal, however, which is appearing in the leading London and provincial newspapers is a national one, and we would not wish to be left out of it, and, moreover, this appeal is for the many who are fighting or preparing to fight for us, and not only for those who are *hors de combat*. Our men are worth anything we can give them, and this appeal for £500,000 for the work of the Y.M.C.A. among them is practically equivalent to handing each man three shillings as a Christmas-box.

Major W. McAdam Eccles, R.A.M.C.(T.), is willing to receive with thanks whatever sum members of the profession will send to his address, 124, Harley-street, W. 1, before Dec. 20th, 1917, and to hand it over as the contribution of our profession to this fund.

We are, Sir, yours faithfully.

DONALD MACALISTER, K.C.B.
ALFRED PEARCE GOULD, K.C.V.O.
CHARTERS J. SYMONDS, C.B.
Dec. 1st, 1917. W. MCADAM ECCLES, Hon. Sec.

[1] London Medical Repository, vol. viii., No. 48, p. 537.
[2] Dict. of Nat. Biography.
[3] Loc. cit., p. 537.
[4] THE LANCET, Dec. 1st.

Obituary.

ELSIE MAUD INGLIS, M.B., C.M.EDIN., L.R.C.P. EDIN.,

COMMISSIONER OF THE LONDON UNITS OF THE SCOTTISH WOMEN'S HOSPITALS (NATIONAL UNION OF WOMEN'S SUFFRAGE SOCIETIES).

THE death was recorded last week of Dr. Elsie Inglis, the Commissioner of the London Units of the Scottish Women's Hospitals, which took place on Nov. 26th at Newcastle-on-Tyne shortly after her arrival with her hospital unit from the Russo-Rumanian front.

Elsie Inglis was the second daughter of the late J. F. D. Inglis, a member of the Indian Civil Service, and formerly Chief Commissioner at Lucknow. She was born in 1865 and spent her early life partly in India and partly in Australia and was brought up in the strict tenets of the Plymouth Brotherhood. Determining to adopt medicine as a profession, she went to Edinburgh and qualified in medicine in 1892 as L.R.C.P. She studied also in Paris, Dublin, and Glasgow, and the Edinburgh degree becoming shortly afterwards available for women, Elsie Inglis, who had already gone into practice, graduated as M.B., C.M. Edin. in 1899. Her bent was strongly towards surgery, especially in its relation to the diseases of women, and she was shortly appointed surgeon at the Edinburgh Hospital and Dispensary for Women and Children, becoming also lecturer on systematic gynæcology to the School of Medicine in Edinburgh. In these positions she soon made herself apparent to all as a woman of professional capacity, great organising power, and high ideals. She encouraged in every way the women students in the Edinburgh Medical School, and was sincerely beloved as well as respected by those whose interests she was working to promote. She was an early and enthusiastic supporter of the movement for women's suffrage, and a prominent member of the Scottish Federation of Women Suffrage Societies, an association with practical politics which, while it gained for her friends and supporters in different directions, occasionally embarrassed her in her relations with some of her educational colleagues, not only those in the minority who did not share her views.

At the outbreak of war she originated the idea of sending to the actual seat of fighting hospital units staffed by women and organised by the Scottish Federation, and it was a great disappointment to her when it was decided by the authorities not to find place for these units on the British front. But the French and Serbian Governments gratefully accepted the proffered help, and Dr. Inglis with a large unit started a hospital at the Abbaye of Royaumont. This hospital was in full work by the first December of the war; its fine record has been chronicled publicly on many occasions, and to-day it is living up to that record. Returning to Scotland when the work in France had been successfully inaugurated, Dr. Inglis obtained permission to start for Serbia in April, 1915, and joined the units already working there as Commissioner to the Scottish Women's Hospitals. She took part in the tremendous fight against the typhus epidemic which threatened the army and civil population alike in the country of our tragic and courageous ally. She became devoted to the Serbians, whose simplicity and complete spirit of self-sacrifice for a cause appealed to her, and in her turn she was adored by the Serbians. She was the only woman on whom the Serbian Order of the White Eagle has ever been bestowed, but her real reward in Serbia was the unbounded gratitude with which the Serbian people received her work. When Bulgaria, or the King of Bulgaria, decided to fight on the side of the Turk, the betrayed Serbian army was forced to retreat, the Austro-German armies, thus reinforced, being able to overwhelm their one small foe, to whom no assistance could be given by her allies. Two hospital units were captured at Krushevatz, and Dr. Elsie Inglis and her colleague, Dr. Alice Hutchinson, together with part of the hospital staffs, who had refused to leave their badly wounded patients uncared for, were taken prisoners by the Austrians. All the hospital stores were looted, and the Serbian patients for whom they had been provided were sent into a deserted and filthy Serbian hospital to make room for the wounded of the conquerors. The hospital units were afterwards handed over to the Germans and finally released, proceeding to England through Switzerland in the spring of 1916. The full story of what had been accomplished by these brave and untiring women for the Serbians in their national agony will surely and in due time be recorded, but sufficient has been made public to enable all to see that no finer conquest of bravery over terror, sanitation over muck, and order over chaos will ever be told. "The Serbian nation," said the Crown Prince of Serbia, when decorating Elsie Inglis with the White Eagle and other of her brave comrades with the Order of St. Sava, "will never forget what these women have done"; their compatriots are not behind in their proud admiration.

Many people, not quite young, sorely tried by cruel experiences, marked by physical hardships, and definitely rewarded for great and acknowledged services, would have sought, for a time at least, a post of lesser personal responsibility, and even one more sheltered from actual risk. Not so Elsie Inglis. On her return she applied immediately to the War Office for permission to take a hospital unit to Mesopotamia. Her request was denied, and to grant it, indeed, would have been accompanied by insuperable difficulties. So her thoughts turned once more to her beloved Serbians, and with a field hospital unit of 75 women, the London units of the Scottish Women's Hospitals, she went out to Rumania with permission to travel by way of Archangel and Odessa. Here the hospital was attached to the Serbian Division of the Russian Army, a Slav corps organised to fight on the Dobrudja front, and Dr. Inglis faced once more the horrors of a great retreat before the invaders, this time of Rumania. For the work done on this ghastly occasion, both for the wounded soldiers, Russian and Serbian, and for the flying civilian population, the "ladies of the unit" were thanked by Mr. Balfour, as Secretary of State for Foreign Affairs. Advancing with the Russians when the armies again went forward, the hospital was re-established at Reni on the Russo-Rumanian front, where it worked at high pressure for nine months, until, in fact, all fighting ceased on that front. Then, and after a journey lasting four weeks across Russia, Elsie Inglis, the Commandant, brought the whole of her unit back in safety, only to die herself within a few hours of reaching England.

Elsie Inglis gave her life for her country and its allies as truly as any soldier in the trenches has ever done and as cheerfully. She was a wonderful compound of enthusiasm, strength of purpose, and kindliness, a threefold blend exactly calculated to allow full play to her great organising abilities. Remarkably modest, she was always full of generous appreciation of others. In the history of this world-war, alike by what she did and by the heroism, driving-power, and simplicity with which she did it, Elsie Inglis has earned an everlasting place of honour.

Dr. Inglis was buried in Edinburgh, the coffin being carried on a gun-carriage covered with a Union Jack and the Serbian flag, and the road to the cemetery was lined by crowds of citizens who had come together to show affectionate respect for her memory.

E. C. S.

EDWARD PARKER YOUNG, M.R.C.S. ENG., L.S.A.

Mr. E. Parker Young, who practised in the district for over half a century, died at his residence, Westbourne-square, Paddington, on Nov. 24th, in his eightieth year. He received his medical education at St. Mary's Hospital, and was house surgeon there after taking the usual double qualifications of the day—namely, the M.R.C.S., L.S.A., in 1860. Subsequently he was appointed surgeon to the Westbourne Infirmary. Mr. Young, who was a member of the first London County Council, was a Past Master of the Society of Apothecaries, and was until recently a member of the Central Midwives Board. He was formerly chairman of the Royal Medical Benevolent Fund and took an active part in the management of St. Mary's Hospital, the Lock Hospital, and various charitable and religious bodies. He was keenly interested in the working of the Young Men's Christian Association.

IN writing last week of the late Dr. Edward Burd's early memories, the name of Charles Darwin's father was inadvertently given as Erasmus. His father was Dr. Robert Waring Darwin, a successful physician practising in Shrewsbury. The error was not made by the writer of the obituary notice.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Killed.

Capt. A. B. Clarke, M.C., R.A.M.C., attached London Regiment, qualified at Aberdeen in April, 1915, and thereupon joined up. The award of the M.C. was recorded in THE LANCET of Nov. 18th, 1916, p. 881.

Died of Wounds.

Lieut.-Col. A. W. F. Sayres, R.A.M.C., received his medical education at St. Thomas's Hospital, London, and qualified in 1890. He held appointments at St. Thomas's Hospital, at the Bethlem Royal Hospital, and at the South Devon and East Cornwall Hospital, and prior to joining the R.A.M.C. was tuberculosis officer to the Stonehouse District of the Devon County Council. Before the war he was attached to the Territorial Force Medical Service, in which he held the position of Major.

Wounded.

Capt. S. H. Harris, R.A.M.C., attached London Regt.
Capt. H. F. Woods, R.A.M.C., attached London Regt.
Capt. N. McA. Gregg, R.A.M.C., attached E. Yorks Regt.
Capt. C. Hunter, R.A.M.C.
Capt. A. J. A. McCabe-Dallas, R.A.M.C.
Capt. K. M. Nelson, M.C., R.A.M.C.
Capt. V. H. L. MacSwiney, R.A.M.C.
Capt. T. F. B. Reid, R.A.M.C., attd. Royal Field Artillery.
Capt. J. R. Barriskill, Australian A.M.C.
Capt. S. G. Gibson, Australian A.M.C.
Capt. T. C. Clarke, M.C., R.A.M.C.
Capt. T. Stansfield, R.A.M.C., attached Manchester Regt.
Lieut. M. B. Taylor, R.A.M.C.
Capt. J. Alexander, R.A.M.C.
Capt. C. B. Davies, M.C., R.A.M.C.
Lieut.-Col. H. W. Carson, R.A.M.C.
Major J. B. McKenzie, Australian A.M.C.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Lieut. G. Hall, M.C., Royal Fusiliers, killed in action, son of Dr. A. Hall, of Surbiton, Surrey.

Major E. A. G. Snell, Bedfordshire Regiment and King's African Rifles, killed in action, only son of Dr. G. Snell, late Colonial Medical Service, of Earl's Court, London, S.W.

Lieut. J. C. Ensor, Welsh Regiment, died of wounds, second son of the late Dr. H. C. Ensor, of Cardiff.

Sergt. A. B. Bond, Australian Infantry, died in Prisoners of War Camp at Münster, Westphalia, son of Dr. J. W. Bond, of Harley-street, London.

Second Lieut. V. R. Atkinson, West Riding Regiment, killed in action, only surviving son of Dr. F. E. Atkinson, of Bowerley, Settle, Yorks.

Lieut. P. B. Clarke, Canadian Infantry, killed in action, only son of Dr. W. F. Clarke, of Toronto, Canada.

Lieut. C. L. Hains, R.N.A.S., reported missing on May 26th, now officially reported killed, son of the late Dr. L. J. C. Hains, of Totnes, Devon, and of Old Brompton, Chatham.

THE HONOURS LIST.

The following awards to medical officers are announced:—

Order of the British Empire.

Commander: Surg.-Lt.-Col. Sir W. R. Crooke-Lawless, C.B., C.I.E., Red Cross Hospital, Netley.

Officer: Lt.-Col. T. H. Symons, I.M.S., in charge of Hospital Ship *Madras*.

MENTIONED IN DESPATCHES.

The names of the following medical officers are mentioned for gallant conduct and distinguished services during the past six months in a despatch received from Lieutenant-General G. F. Milne, C.B., D.S.O., Commander-in-Chief of the British Salonika Force. All are members of the R.A.M.C. except where otherwise stated:—

Lt.-Col. (acting Col.) A. R. Aldridge, C.S.I., C.M.G.; Temp. Capt. D. I. Anderson; Lt.-Col. F. Ash; Temp. Capt. R. D. Attwood; Temp. Capt. J. Bain; Lt. (temp. Capt.) D. W. Beamish; Temp. Lt.-Col. E. T. F. Birrell, C.B., C.M.G.; Capt. G. B. Brand; Temp. Capt. A. Benjamin; Capt. A. E. Barnes; Capt. W. H. Brodie; Temp. Capt. M. S. Bryce, M.C.; Temp. Capt. (acting Lt.-Col.) C. V. Bulstrode (Maj. R.H.A.); Lt.-Col. H. J. M. Buist, D.S.O.; Temp. Capt. G. B. Burwell, M.C.; Capt. R. P. Cameron; Temp. Capt. L. Cassidy; Capt. T. Carnwath, Spec. Res.; Capt. W. F. Christie; Capt. W. K. Churchouse; Capt. W. A. Clarke, Canadian A.M.C.; Temp. Capt. A. H. Coleman; Capt. (temp. Maj.) G. H. Colt; Capt. E. H. Coyne; Temp. Capt. P. C. Davie; Capt. S. J. Davis; Capt. I. D. Dickson; Temp. Capt. J. N. Dobbie; Lt. W. Donald; Temp. Lt.-Col. L. S. Dudgeon; Maj. P. G. Easton, D.S.O.; Capt. T. C. English, C.M.G. (temp. Col., A.M.S.); Temp. Capt. H. H. L. Ellison; Temp. Capt. R. R. Elworthy; Temp. Capt. H. R. Evans; Capt. H. A. T. Fairbank; Capt. (temp. Maj.) A. W. Falconer; Temp. Capt. D. Fettes; Temp. Capt. W. H. Fleetwood; Capt. W. B. Foley; Temp. Capt. J. G. Forbes; Maj. (acting Lt.-Col.) D. L. Fisher; Capt. W. R. Galwey, M.C.; Capt. J. S. Gaskell; Capt. E. G. Gauntlett; Lt.-Col. G. Gow, Canadian A.M.C.; Maj. (temp. Lt.-Col.) J. Gray; Capt. (acting Maj.) D. A. L. Graham; Temp. Capt. A. R. Green; Capt. A. D. Griffith; Capt. A. W. Harrington; Capt. N. H. Harrison; Temp. Capt. C. S. Van R. Harwood; Temp. Capt. J. F. C. Haslam; Capt. J. R. Hill; Temp. Capt. J. F. Hoare; Temp. Capt. H. G. Hobson; Lt.-Col. J. E. Hodgson; Capt. H. S. Hollis; Col. M. P. C. Holt, K.C.M.G., C.B., D.S.O.; Capt. B. Hughes; Capt. and Bt.-Maj. (acting Lt.-Col.) B. Johnson; Maj. J. G. W. Johnson, Canadian A.M.C.; Maj. J. T. Johnson, D.S.O.; Temp. Capt. J. M. Kelly; Capt. R. B. Kelly; Maj. (temp. Lt.-Col.) A. E. Kidd; Capt. G. F. V. Leary; Temp. Capt. A. A. Lees; Capt. W. A. Lethem; Capt. N. L. Lochrane; Capt. N. V. Lothian; Lt. (temp. Capt.) A. M. McCutcheon; Capt. D. Mallam; Capt. A. C. Macdonald, Spec. Res.; Temp. Capt. W. K. McIntyre; Lt.-Col. C. B. Martin; Capt. W. J. F. Mayne; Capt. P. H. Mitchiner; Temp. Capt. H. H. Moffatt; Capt. (temp. Maj.) K. W. Monsarrat; Temp. Capt. H. G. Murray; Lt.-Col. (temp. Col.) W. H. S. Nickerson, V.C., C.M.G.; Capt. O. J. O'B. O'Hanlon; Capt. A. Oliver; Lt.-Col. (temp. Col.) F. S. Penny, C.M.G.; Col. G. T. Rawnsley, C.M.G., A.M.S.; Temp. Capt. D. R. E. Roberts; Capt. A. B. Schinbein, Canadian A.M.C.; Capt. L. J. Shell; Lt.-Col. and Bt.-Col. (temp. Col.) F. Smith, C.M.G., D.S.O.; Lt.-Col. L. F. Smith, C.M.G.; Lt.-Col. E. H. Starling, F.R.S.; Capt. J. P. Stewart, C.B. (temp. Col., A.M.S.); Temp. Maj. J. W. Struthers; Capt. (acting Lt.-Col.) P. S. Tomlinson; Capt. R. M. Vick; Maj. E. B. Waggett; Maj. (acting Lt.-Col.) J. Ward; Temp. Capt. J. D. Watson; Temp. Capt. T. B. Williams; Capt. M. J. Williamson, M.C.; Capt. E. A. Wilson; Temp. Capt. D. E. S. Wishart; Lt.-Col. S. H. Withers, C.M.G.

MEDICAL WOMEN (ATTACHED R.A.M.C.).

Miss M. A. Blair, Miss B. M. Cunningham, Miss B. J. Dalyell, Miss E. M. Edwards, Miss E. B. Hollway.

The names of the following medical officers, serving with the British artillery in Italy, have been brought to the notice of the Secretary of State for War for distinguished service in the field:—

Capt. J. A. Davies, R.A.M.C. (T.F.); and Maj. (temp. Lt.-Col.) B. H. V. Dunbar, D.S.O., R.A.M.C.

RELEASE OF MEDICAL STUDENTS.

The scope of the Army Council's Instruction of September is extended by the new Order (No. 1751) which provides for transfer to the reserve or discharge from the Army, on application, of any medical student who had at the time of enlistment completed the second year of his professional course. Release is conditional upon resuming medical studies, enrolling in an O.T.C., and passing the examination in anatomy and physiology within six months.

BATHING TRAINS FOR THE AUSTRO-HUNGARIAN ARMY.

In the *Military Surgeon* (Washington, D.C., U.S.A.) for October Colonel Joseph H. Ford, Medical Corps, United States Army, describes a bathing train used in the Austro-Hungarian Army. Its arrangement, he says, gave great satisfaction, and ten other similar trains were in use with the enemy forces. In addition to the usual locomotive for transport it had another altered to pump water and supply steam for disinfection and for warming the bath water. Two living cars housed the personnel (1 second lieutenant, 6 train crew, 17 technical staff). Five store cars carried soap, towels, brushes, 10 per cent. naphthalin ointment in vaseline, 10,000 clean clothing outfits for men to wear while their own was being disinfected. Water for two days was carried in two tank cars, each holding 40 tons. There were three disinfecting cars, of which one disinfected underclothing at 103° C. in half an hour; the other two disinfected furs, overcoats, boots, &c., with formalin at 60° C. in six hours. There were five cars in the bathing section. Men undressed in the centre car, putting each his kit in a sack, taken away at once for disinfection, and themselves they passed into the next car either way, where each picked up soap and towel and washed himself. The bath car had a 25-ton tank on the roof, and 30 shower douches allowed seven gallons of water at 98° F. to fall on each of the 30 bathers in five minutes, by the end of which time he was supposed to be clean. The car was lighted by numerous frosted windows or by overhead electric lights. The man then dried himself and rubbed himself over, especially the hairy parts, with the 10 per cent.

naphthalin ointment and passed into the next car, where he dressed himself in the outfit laid ready for him, remaining there till his own clothes were disinfected and he could change into them. Each train was estimated to bathe 1400 to 2000 men daily, but one, says Colonel Ford, had been known to deal with 3600. Sometimes the bathing train had a laundry attached; more usually the laundry was independent, and carried by a motor lorry with trailer. It had a washing machine, centrifugal drier, drying closets, and a mangle; with 23 men as staff, they were expected to wash a ton of dirty clothes in a day.

PRACTICES OF ABSENTEE MEDICAL OFFICERS.—The following two resolutions were passed at a meeting of the medical profession in the Southampton area during the summer and are now sent to us for publication by Dr. H. L. Hamilton, honorary secretary of the Local Medical War Committee:—

1. In view of the difficulty of the "remaining" doctors getting accurate information, this meeting recommends that each "absent" doctor, on his return to Southampton, should call on his old patients and obtain from them particulars of their having consulted any "remaining" doctor, and the "absent" doctor should be and is hereby authorised to make application to the "remaining" doctor for particulars of any attendance given, and for payment of the half fees earned, and that all doctors be so informed.

2. This meeting recommends that the individual members of the profession should, owing to the difficulty of selling a practice, pay to the representative of any absent doctor (general practitioner) who dies on service, or to himself if permanently and totally disabled on service, £10, if such dead or disabled practitioner was in practice on his own account, or £5 if in partnership, and that all doctors be so informed.

It was resolved with regard to resolution No. 2 that it should apply to general practitioners only, and that the benefits should apply to those general practitioners absent from the town and from their practices. It was also agreed that the widow of any doctor who received the benefit should have the right unprejudiced, so far as the grant would be concerned, to sell the practice.

Medical News.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee, held on Nov. 13th, 35 cases were considered and £330 voted to 33 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 58, of M.R.C.S. Eng. who practised at Oxford and died in January, 1917. Applicant was left with five children, ages 10 months to 13 years, and with exception of £1100 capital is dependent on relatives, who cannot do very much. Wants help for the education of the children. Voted £20 and referred to the Guild.—Daughter, aged 56, of M.R.C.S. Eng. who practised in North Wales and died in 1913. Applicant was teaching in Austria when the war commenced and lost practically all her belongings. Only certain income £21 per annum, and this year has been living on a legacy of £60 left her by a relative. Health has been very indifferent of late. Voted £10 and referred to the Guild.—M.B. Edin., married, who has practised at Colchester and London, and is now suffering from cancer. Before the war was making £1000 a year, and owing to the war and illness this was reduced up to three months ago to about £350. Quite unable to work now and living on fees owing to him. Rent £200 a year. Has a daughter and one son, who is in the Army. Voted £5 and the case to be further considered.—Daughter, aged 52, of L.S.A. Lond. who practised at London and Eastbourne and died in 1882. Applicant and her mother lived together until the death of the latter in July of this year, and several small items of income died with her. The applicant has a small school, the profit from which is about £25 a year. Her other income is from investments bringing in about £14 a year. Voted £10 in 2 instalments.—Daughter, aged 34, of M.R.C.S. Eng. who practised in Yorkshire and Bedford and died in 1906. Applicant has been a chronic invalid all her life, and her brother-in-law has kept her since her father's death, but owing to illness and loss of income he cannot do so entirely now. She would like to get into a home. Voted £18 in 12 instalments.—Widow, aged 41, of L.R.C.P. Edin. who practised at Middleham and died on Oct. 3rd, 1917. Applicant left with two children, ages 14 and 9. Wants help for the education of the children. Will get a little from insurance and wants to sell the practice. She hopes to be able to obtain some employment when her affairs are settled. Voted £10 and referred to the Guild. Daughter, aged 65, of M.R.C.S. Eng. who practised in London and Birmingham and died in 1856. Applicant tries to make a living by sewing, but owing to bad health and the increased cost of living is unable to pay her way. Relieved three times, £36. Last time, March, 1913. Voted £12 in 12 instalments.—Widow, aged 46, of L.R.C.P. Edin. who practised in East London and died in 1915. Applicant was left entirely without means, with one son, now aged 9 years. She is paralysed and unable to do anything. A relative who found her lodgings has recently died, and she is now living in a room at an almshouse paying 2s. per week. Relieved once, £10. Voted £15 in 12 instalments.—Widow, aged 36, of L.R.C.P. Edin. who practised in Edinburgh and died in 1916. Applicant was left with four children, ages 3–11, with an income of £96 a year. Owing to the increased cost of living she finds it quite impossible to manage. Relieved once, £12. Voted £15 in 12 instalments.—Widow, aged 59, of L.R.C.P. Edin. who practised at Langley and died in 1909. Lives in own house, which is heavily mortgaged. Endeavours to make a living by taking in paying guests, but owing to high price of living unable to make ends meet. Relieved seven times, £70. Voted £10 in two instalments.—Widow, aged 60, of M.D Glasg. who practised in Perthshire and died in 1907. Her total income, from a lodger and other sources, £73. Son who helped to keep the home together now in the Army. Relieved three times, £22. Voted £10.—Widow, aged 71, of L.R.C.P. Edin. who practised at Cardiff and died in 1906. Receives two pensions from other societies, making her income £54. Pays £1 per week for board and lodging. Two sons married and unable to help. Suffers from rheumatism and bronchitis. Relieved 12 times, £88. Voted £6 in 12 instalments.—Daughter, aged 47, of M.R.C.S. Eng. who practised at Redcar and died in 1873. Applicant suffers from tuberculosis and lives with mother, who is unable to help her. She receives two pensions from other societies, total £30. Relieved six times, £62. Voted £10 in two instalments.—M.R.C.S. Eng., aged 48, married, who has practised at Birmingham. Applicant suffers from disseminated sclerosis and is quite helpless. Only income 10s. a week from relatives. Only son recently elected to an Epsom College scholarship. Relieved once, £18. Voted £26 in 12 instalments.—Widow, aged 72, of M.R.C.S. Eng. who practised at East London and died in 1913. Applicant's income is £50, and this is all she has to support herself and daughter. A brother who used to help has recently died. Relieved four times, £48. Voted £12 in 12 instalments.—Widow, aged 47, of L.R.C.P. Edin. who practised at Llangelly and died in 1913. Has five children and only two able to assist, they providing £95 a year. One son in the Army and no separation allowance. Increased cost of living makes it impossible for her to manage. Relieved twice, £30. Voted £10 in two instalments.—Widow, aged 54, of M.D. Edin. who practised at Newcastle and died in 1896. Applicant left without means. She obtained work, but fractured her leg some time ago, and has been incapacitated since. Has a daughter who is a widow and works as a clerk, and helps as far as possible. Relieved three times, £36. Voted £12 in 12 instalments.—Daughter, aged 65, of F.R.F.P.S. Glasg. who practised at Widnes and died in 1863. Applicant has two pensions bringing her in £40 a year, and is provided with furnished rooms. Her health is very bad and requires special nourishment. Owing to high price of food, finds it difficult to manage. Relieved four times, £20, the last time in May, 1914. Voted £5.—M.R.C.S. Eng., aged 47, married, who practised in London and other places. Applicant has suffered from asthma for a number of years. He joined the R.A.M.C., but after a few months was invalided out. Now totally incapacitated from work, and his wife, who had obtained a post, had to give it up to nurse him. All savings practically exhausted. Voted £20, and recommended to apply to another Fund, from which a little help has been given.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W.1.

A WELSH WAR MEMORIAL.—On Nov. 30th Mrs. Lloyd George presided at Shrewsbury over a conference called to promote a fund for the welfare of sailors and soldiers of Wales as a Welsh war memorial. The scheme will unite the Welsh National Fund and the National Fund for Welsh Troops. The Prince of Wales is naturally suggested as the patron of the fund. It is proposed that in order to provide free education at the University of Wales for the sons and daughters of soldiers who have sacrificed themselves for their country a science institution be built at Bangor at a cost of £150,000.

UNITED PROVINCES HOSPITALS.—The United Provinces Government's resolution on the report on hospitals for the years 1914 to 1916 says that from the outset of war heavy and continuous demands were made on the personnel, which has been depleted to an extent unknown in any other branch of the public service. Three-quarters of the Indian Medical Service officers on the civil employment list, and practically all the military assistant surgeons and sub-assistant surgeons, have been transferred to the military service. The expansion of medical activities, which the report nevertheless reveals, is the best testimony to the success with which the department has been administered in circumstances of exceptional difficulty. The thanks of the Government are due to those officers for whom retention in civil employ has meant a heavy increase of work, and to those who have given up private practice or the enjoyment of pension in order to set others free for military service.

SECOND ANNUAL REPORT OF THE NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—This report contains the record of another year's successful work in providing accurate and enlightened information as to prevalence of venereal diseases and promoting reforms in connexion with them. It includes the addresses delivered by Lord Rhondda, Sir Alfred Keogh, the Lord Mayor of Liverpool, Mrs. Creighton, and Sir Malcolm Morris at the annual meeting in the Queen's Hall on June 13th. During the year ending June, 1917, branch committees of the council had been formed at Bath, Birmingham, Cambridge (co.), Dewsbury, Gloucester, Leicester, Liverpool, London and Home Counties, Newcastle-upon-Tyne, Southport, South Shields, and Tynemouth, where in each case a treatment scheme had been approved by the Local Government Board, and at Bournemouth, Walsall, and York, where some provision for treatment had been made but a scheme not yet approved. An account follows of the work being done by each of these branches, a list of books and pamphlets which have received the imprimatur of the council, and, in an appendix, the terms of the Venereal Disease Act, 1917.

METROPOLITAN HOSPITAL SUNDAY FUND.—The total receipts for this year of the Metropolitan Hospital Sunday Fund now amount to £76,354, or £5655 more than the sum collected last year. There are 239 hospitals, dispensaries, and nursing institutions receiving benefits from the Fund.

DONATIONS AND BEQUESTS.—The late Mr. John William Roberts, of The Dingle, Hale, Cheshire, has left by will £1000 to the Manchester Royal Infirmary and £500 each to the Manchester and Salford branch of the Society for the Prevention of Cruelty to Children, the Incorporated Cheshire and Lancashire Society for the Permanent Care of the Feeble-minded, the National Institution for the Blind for work among blinded sailors and soldiers at St. Dunstan's, and the Crippled Children's Help Society.—By the will of the late Mrs. Ellen Woodgate McMillan Guy's Hospital will receive £2000.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—A quarterly meeting of the association was held on Nov. 27th, under the presidency of Lieutenant-Colonel David G. Thomson, R.A.M.C. The appointment of Dr. James Chambers, of Roehampton, as treasurer, in the place of Dr. Hayes Newington, was announced by the chairman, who said that on the same day two of the great pillars of the association, Dr. Newington and Dr. A. R. Urquhart, had died. The meeting marked its sense of bereavement by rising to pass the resolution of condolence to the respective relatives. A similar mark of respect was shown in regard to the following deceased members: Dr. William Graham, medical superintendent of Belfast District Asylum (the result of an accident), and Colonel James Hyslop, D.S.O., Deputy Director of Medical Services, Pietermaritzburg. Dr. David Orr and Major R. G. Rows, R.A.M.C., contributed a paper, with lantern demonstrations, on Experimental Toxi-infections of the Central Nervous System.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

C. V. Samwell to be temporary Surgeon.

ARMY MEDICAL SERVICE.

Assistant Director of Medical Services: Temp. Col. J. A. Roberts, C.B., Canadian A.M.C., vice Temp. Lieut.-Col. J. McCombe, Canadian A.M.C.

Col. F. R. Newland, C.M.G., to be temporary Surgeon-General.

TERRITORIAL FORCE.

Major (temp. Lieut.-Col.) T. Kay to be Assistant Director of Medical Services, and to be Temporary Colonel whilst so employed.

Temp. Col. W. C. Beevor, C.M.G. (Lieut.-Col., retired pay), relinquishes his temporary rank on vacating the appointment of Assistant Director of Medical Services, and is granted the honorary rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

Temp. Lieut.-Col. (acting Col.) J. D. Courtenay, Canadian A.M.C., relinquishes the acting rank of Colonel on ceasing to be Officer Commanding of a Canadian Hospital.

Temp. Major G. D. Gray, M.D., to be acting Lieutenant-Colonel whilst in command of the Chinese General Hospital.

Major T. B. Moriarty and Major J. F. Whelan to be acting Lieutenant-Colonels whilst in command of a Medical Unit.

Temporary Lieutenants to be temporary Captains: N. S. Neill, D. F. Riddell, H. L. Martyn, L. D. Cohen, L. W. Kergin, A. F. Cowan, S. G. Kean.

Lieutenants to be Captains: E. M. L. Morgan, H. Morley, R. F. Jarrett, J. W. G. Steell, C. Young, A. W. A. Davies, A. R. Balmain, G. S. Martin, B. H. Simon, G. S. Lawrence.

The undermentioned to be temporary Captains: D. A. Warren, M.C., J. C. Bawden, C. H. Philips, G. M. Shaw, J. T. MacKenzie, A. Drouin, H. M. Godfrey.

Temporary honorary Lieutenants to be temporary honorary Captains: A. T. Paterson, of the St. John's Ambulance Brigade Hospital; C. H. L. Harper.

C. G. L. Wolf to be temporary Honorary Captain whilst specially employed.

T. O. Hutton, late temporary Captain, is granted the honorary rank of Captain.

To be temporary Lieutenants: S. G. Kean, A. G. McKenley, H. J. Starling, C. W. Joynt, L. H. Butler, F. W. H. Pilot, T. B. H. Tabuteau, B. W. H. Fergus, J. G. Millar, W. S. Stevenson, R. Butterworth, J. C. Nixon, A. G. Wright, H. J. Villiers, J. C. Fox, G. H. C. Quhart, H. S. Metcalfe, J. A. M. Bligh, H. L. W. Woodroffe, R. Steel, B. S. Laurence.

Officers relinquishing their commissions: Temp. Capts. R. N. Craig, A. E. W. Idris, C. Weeks (granted the honorary rank of Captain), N. McGowan, S. Pinion, A. J. Best, L. Cairns, J. H. O'Neill, W. R. W. Asplin, D. H. Pennant, D.S.O., C. E. Price, E. H. Roberts, R. B. Martin, M.C., D. D. Rosewarne, R. Silcock, A. W. Addinsell, S. R. Edson, Canadian A.M.C., J. D. Maclean, Canadian A.M.C., H. W. M. Kendall, W. S. Holmes, Canadian Army Dental Corps. Temp. Hon. Capt. E. M. Easton on ceasing to be employed with a Red Cross Hospital), Temp. Lieuts. H. A. Faulkner, J. H. P. Vivian, P. A. Storey, P. Maguire, W. H. Kirk, H. Nicol (on account of ill-health), Temp. Hon. Lieut. F. A. Simonds.

SPECIAL RESERVE OF OFFICERS.

Samuel Murdock Riddick, M.B., to be Lieutenant.

G. G. Allan (from Edinburgh University Contingent O.T.C.), L. C. Moore and J. W. Brash (from University of London O.T.C.), C. G. Magee (from Glasgow University Contingent O.T.C.).

TERRITORIAL FORCE.

To be acting Lieutenant-Colonels whilst commanding Stationary Hospitals: Major J. W. Mackenzie. Major J. B. Yeoman.

Major J. A. Coupland, from permanent personnel, to be Major, whose services are available on mobilisation, and is restored to the establishment.

Major (temporary Lieut.-Col.) J. H. Ray relinquishes his temporary rank, and is restored to the establishment.

Major (temporary Lieut.-Col.) R. M. West, D.S.O., to be Lieutenant-Colonel.

Major (temporary Lieut.-Col.) A. Cooke relinquishes his temporary rank and is restored to the establishment.

The undermentioned Captains (temporary Majors) relinquish their temporary rank, and are restored to the establishment: R. Ollerenshaw, F. E. Tylecote.

Capt. G. M. A. Thomas resigns his commission on account of ill-health.

Capt. H. F. Wilkin, M.C., F.R.C.S., is restored to the establishment on vacating the appointment as Deputy Assistant Director of Medical Services.

Capt. J. D. Allen resigns his commission on account of ill-health.

Capt. J. S. Burton resigns his commission.

Capt. A. S. Daly is seconded for duty with a General Hospital.

Capt. A. Gough, Capt. M. Horne, Capt. J. Wharton, and Capt. V. C. de Bunsville are restored to the establishment.

Capt. H. W. Beedham and Capt. W. W. Horton resign their commissions on account of ill-health.

Capt. E. Bromet and Capt. B. Fawssett relinquish their commissions on account of ill-health contracted on active service, and are granted the honorary rank of Captain.

Lieut. S. R. Walker to be Captain.

Capt. J. Broadly and Capt. H. Mason are seconded.

Capt. (temp. Major) J. M. Hunt to be acting Lieutenant-Colonel whilst performing the duties of Administrator of a General Hospital.

Capt. R. P. Pollard, from Attached to Units other than Medical Units, to be Captain.

Capt. F. W. C. Brown is seconded whilst holding an appointment as Deputy Assistant Director of Medical Services.

Capt. D. Shannon to be acting Lieutenant-Colonel whilst commanding a Stationary Hospital.

Capt. (temp. Major) J. W. Keay relinquishes his temporary rank on ceasing to command a Field Ambulance.

Capt. E. B. Argles is seconded whilst holding an appointment as Deputy Assistant Director of Medical Services.

Capt. J. F. Edmiston from Deputy Assistant Director of Medical Services, to be Captain.

Capt. (temp. Major) W. Cowie relinquishes his commission on account of ill-health contracted on active service, and is granted the honorary rank of Major.

Captain W. Brown to be acting Lieutenant-Colonel whilst commanding a Field Ambulance.

Capt. (acting Lieut.-Col.) W. Brown relinquishes his acting rank on ceasing to command a Field Ambulance.

Capt. J. MacMillan, M.C. to be acting Lieutenant-Colonel whilst commanding a Field Ambulance.

Capt. H. Armstrong and Capt. W. C. Oram are restored to the establishment.

Captains (temporary Majors) relinquishing their temporary rank and restored to the establishment: D. Douglas-Crawford, J. Hay.

Lieut. S. R. Walker to be Captain.

C. B. Palmer to be temporary Lieutenant-Colonel, Northumberland Medical Volunteer Corps.

INDIAN MEDICAL SERVICE.

Lieut.-Col. W. W. Clemesha to be temporary Colonel whilst employed as Assistant Director of Medical Services.

URBAN VITAL STATISTICS.

(Week ended Dec. 1st, 1917.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 17,000,000 persons, the annual rate of mortality was equal to 11·9, against 12·2 and 12·3 per 1000 in the two preceding weeks. In London, with a population exceeding 4,000,000 persons, the death-rate was 12·0, or 1·1 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 3·7 in Warrington, 4·8 in Ealing, and 5·2 in Ilford, to 18·2 in Stockton-on-Tees, 19·1 in St. Helens, and 20·8 in Brighton. The principal epidemic diseases caused 307 deaths, which corresponded to an annual rate of 0·9 per 1000, and included 122 from measles, 65 from infantile diarrhœa, 57 from whooping-cough, 49 from diphtheria, 13 from scarlet fever, and 1 from enteric fever. Measles caused a death-rate of 1·6 in Burnley, 1·8 in Brighton, 2·7 in Acton and in Stockton-on-Tees, 2·9 in St. Helens, 3·4 in Leicester, and 5·0 in Dewsbury. The 1344 cases of scarlet fever and 1667 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were respectively 29 and 79 above the numbers remaining at the end of the previous week. Of the deaths from all causes in the 96 towns, 150 resulted from violence. The causes of 24 deaths were uncertified, of which 7 were registered in Birmingham and 2 each in Leicester, Birkenhead, Gateshead, and Rhondda.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 12·5, against 11·9 and 12·2 per 1000 in the two preceding weeks. The 271 deaths in Glasgow corresponded to an annual rate of 12·7 per 1000, and included 6 each from measles and diphtheria, and 3 each from whooping-cough and infantile diarrhœa. The 63 deaths in Edinburgh were equal to a rate of 10·7 per 1000, and included 1 each from measles and infantile diarrhœa.

Irish Towns.—The 119 deaths in Dublin corresponded to an annual rate of 15·6, or 0·6 per 1000 above that recorded in the previous week, and included 4 from infantile diarrhœa, 3 from measles, 2 each from enteric fever, whooping-cough, and diphtheria, and 1 from scarlet fever. The 105 deaths in Belfast were equal to a rate of 13·9 per 1000, and included 3 from diphtheria, 2 from infantile diarrhœa, and 1 each from measles and whooping-cough.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

National Health Insurance Bill.

A Standing Committee of the House of Commons is now engaged in the consideration of the details of the National Health Insurance Bill. Some progress has been made with the measure at two sittings.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 28TH.

Panel Practitioners and Confinements.

Answering Mr. BOWERMAN, Sir E. CORNWALL, representing the National Insurance Commissioners, stated that the services of a medical man in attending during childbirth upon an insured person were not amongst those which the panel doctor was under any agreement with the Insurance Committee to provide. The question of making provision under national health insurance for medical attendance for insured women at confinement would not require legislation. He recognised the importance of the need for this extension of insurance medical services, and he was giving it earnest consideration at the present time.

Prisoners of Feeble Mind.

Sir W. COLLINS asked the Home Secretary whether his attention had been called to the reports of the Prison Commission and of the Medical Commissioner deploring the want of provision of accommodation under the Mental Deficiency Act for prisoners found to be of unsound or feeble mind and the consequent retention in prison amid criminal surroundings.—Sir G. CAVE wrote in reply: State institution for defectives had been provided at Moss Side where it would have been possible to accommodate a large number of defectives on transfer from prison, but just when it was completed the urgent need of the Army Council for hospital accommodation made it necessary to lend these premises for use as a military hospital. In place of Moss Side a State institution for women has been established at Farmfield, and proposals are now under consideration for opening another temporary State institution for men and women. That more accommodation has not already been provided is due to conditions arising from the war, including the difficulty of obtaining suitable male attendants.

Organisation of Medical Volunteer Corps.

Sir W. COLLINS asked the Under Secretary for War what progress had been made with the organisation of medical volunteer corps and field ambulances; in how many counties in England and Wales such corps had been formed; and what organisation it was proposed to set up in the case of the County of London.—Mr. MACPHERSON replied: Sixteen county medical volunteer corps have been formed or are in process of formation. The total number of field ambulances provided by these corps is 29. No medical volunteer corps has yet been formed for the County of London, but it may be possible to utilise the services of certain personnel in the County of London if developments which are under consideration mature.

MONDAY, DEC. 3RD.

Remuneration of Grimsby Panel Practitioners.

Mr. TICKLER asked the Representative of the National Insurance Commissioners whether he was aware that the Grimsby doctors had now received a final settlement of their remuneration under the national insurance; that their claims amounted to £9256 10*s.*, and that, after deducting £488 9*s.* 10*d.* for various reasons, they had only been paid £6629 6*s.* 7*d.*, leaving an unpaid balance of £2138 13*s.* 7*d.*; and would he say when this balance would be paid.—Sir E. CORNWALL replied: I am not aware that any such balance remains unpaid. Perhaps my honourable friend would be good enough to communicate with me as to the sum which he mentions as the amount of the doctors' claim, as I do not understand it. The practitioners have received the full amount due to them under their respective agreements with the Insurance Committee so far as known to the department.

R.A.M.C. Officers in India.

Mr. MACPHERSON (Under Secretary for War) replying to Mr. BUTCHER, wrote: The War Office has taken steps to relieve from time to time certain medical officers who have been a long time in India, and is continuing the process, which is necessarily slow owing to difficulties of transport.

TUESDAY, DEC. 4TH.

Death of Sir Stanley Maude from Cholera.

Replying to Mr. CHANCELLOR, Mr. MACPHERSON (Under Secretary for War) said: I regret to state that it is confirmed that Sir Stanley Maude died of cholera.

Mr. CHANCELLOR asked whether there many cases of cholera in Mesopotamia.—Mr. MACPHERSON: I am glad to say that there are very few cases indeed.

Glycerine and Sugar in Prescribing.

Mr. ANDERSON asked the President of the Local Government Board whether he was aware that the British Medical Association and the Pharmaceutical Society had issued a formulary containing pharmaceutical preparations known as glycerines which were devoid of glycerine and syrups free from sugar; and whether, considering that the formulary was to come into use on Dec. 1st, he would issue instructions to local authorities to take samples of dispensed medicines with a view of submitting them to examination by public analysts.—Mr. PRATT (for Mr. HAYES FISHER) replied: The answer to the first part of the question is in the affirmative. The attention of public analysts has already been drawn to the fact that the General Medical Council has found it necessary to withdraw certain medicinal preparations from the British Pharmacopœia owing to the need for economising in the use of glycerine and sugar. It does not appear to my right honourable friend that any further action on his part is necessary. He is advised that the omission of sugar and glycerine from the preparations in question does not materially lessen their value as medicines.

Mr. ANDERSON asked a somewhat similar question of the Representative of the National Insurance Commissioners, inquiring whether he would take immediate steps to remind Insurance Committees that insured persons were entitled to have genuine medicines prescribed and dispensed for them, and that samples should be taken of dispensed medicines with a view of submitting them to examination by public analysts.—Sir E. CORNWALL replied: I understand that the General Medical Council has deleted from the British Pharmacopœia certain preparations containing glycerine or sugar owing to the importance in the public interest at the present time of restricting as far as possible the medicinal use of these substances to purposes for which efficient substitutes are not available. Alternative preparations have accordingly been formulated in the publication referred to. That document did not require the approval of the Insurance Commissioners. I would remind the honourable Member that it is the duty of every doctor attending an insured patient to prescribe the proper and sufficient drugs and medicines that are necessary for the efficient treatment of the case, and this is in no way affected by the issue of the formulary in question. The Commissioners are not aware of any reason for issuing such a communication to Insurance Committees as the honourable Member suggests.

WEDNESDAY, DEC. 5TH.

American Medical Men in Military Hospitals.

Mr. LYNCH asked the Under Secretary for War whether medical men in military hospitals who were over age had been replaced by Americans; if so, to what extent this practice had been carried on; and whether he would consider the possibility of utilising the services of elderly medical men for the examination of recruits so as to release for active service medical men of military age.—Mr. MACPHERSON answered: The services of medical officers of the Army of the United States of America are being made use of in the military hospitals at home and abroad, not only to release medical practitioners required for the Army, but in order to afford these officers opportunities of acquiring practical military experience with troops under service conditions. The examination of recruits is conducted under the instructions of the National Service Ministry, to whom this part of the question should have been addressed.

Mr. LYNCH: Is the honourable gentleman aware that there are many civil practitioners over military age who are anxious to do the work?—Mr. MACPHERSON: We always try to use the services of civil practitioners. There was at one time a complaint in the House that we were using civil practitioners too much.

BOOKS, ETC., RECEIVED.

APPLETON AND CO., London and New York.
Principles and Practice of Dermatology. Designed for Students and Practitioners. By W. A. Pusey, A.M., M.D. Third edition. 30*s.* net.

BAILLIÈRE, TINDALL, AND COX, London.
Nerve Wounds. Symptomatology of Peripheral Nerve Lesions caused by War Wounds. By J. Tinel, Ancien Chef de Clinique et de Laboratoire de la Salpêtrière. Preface by Professor J. Dejerine. Authorised translation by F. Rothwell, B.A. Lond. Revised and edited by Cecil A. Joll, M.B., M.S., B.Sc. Lond., F.R.C.S. 15*s.* net.
A Text-book on Gonorrhœa and its Complications. By Dr. Georges Luys. Translated and edited by Arthur Foerster, Captain, R.A.M.C. (T.C.). Second revised edition. 21*s.* net.
Memoranda on Army General Hospital Administration. By various Authors. Edited by P. Mitchell, M.D. Aberd., Lieutenant-Colonel, R.A.M.C. (T.F.). 5*s.* net.
Venereal Disease Problem. A book more especially for Nurses and Midwives. By J. K. Watson, M.D. Edin. 2*s.* 6*d.* net.
Injuries of the Face and Jaw and their Repair. By P. Martiner and Dr. G. Lemerle. Translated by H. Lawson Whale, M.D., F.R.C.S., Captain, R.A.M.C. (T.) (formerly Captain, I.M.S.). 5*s.* net.

Appointment.

NOLAN, M. J., L.R.C.S. Irel., has been appointed Lord Chancellor's Consulting Visitor in Lunacy.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BELFAST DISTRICT ASYLUM.—Medical Superintendent of Purdysburn Villa Colony Asylum. Salary £700 per annum.

BIRMINGHAM CITY EDUCATION COMMITTEE.—Temporary Assistant School Medical Officer. Salary £300 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, Birmingham.—House Surgeon. Salary £200 per annum.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon for six months. Salary at rate of £175 per annum, with board, &c.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Female House Surgeon. Salary, if qualified, £150 per annum; unqualified, £100, with board, &c.

BRISTOL ROYAL INFIRMARY.—House Physician and House Surgeon. Salary at rate of £120 per annum, with board, &c.

DARLINGTON HOSPITAL.—House Surgeon. Salary £200 per annum, with board, &c.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Resident House Surgeon. Also Assistant House Surgeon.

EAST HAM EDUCATION COMMITTEE.—Temporary Female Assistant School Medical Officer. Salary £325 per annum.

ESSEX EDUCATION COMMITTEE.—School Medical Inspector. Salary at rate of £350 per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £250 per annum, with board, &c.

GUY'S HOSPITAL.—Ophthalmic Assistant. Salary 1 guinea each attendance.

LEWISHAM, METROPOLITAN BOROUGH.—Assistant Medical Officer of Health and Maternity and Child Welfare Medical Officer. Salary at rate of £500 per annum.

LIVERPOOL, BROWNLOW HILL POOR-LAW HOSPITAL.—Resident Assistant Medical Officers. Salary at rate of £300 per annum, with rations, &c.

LIVERPOOL ROYAL INFIRMARY.—Honorary Physician.

MANCHESTER ROYAL INFIRMARY (CENTRAL BRANCH).—Resident Surgical Officer. Salary £200 per annum.

MANCHESTER SANITARY COMMITTEE.—Female Medical Officer. Salary £400 per annum.

NEW HOSPITAL FOR WOMEN, Euston-road.—Female Surgeon for Throat and Ear Department.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £200 per annum, with board, &c.

QUEEN MARY'S HOSPITAL FOR THE EAST END.—House Surgeon.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Female Medical and Surgical Registrars.

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WHITTINGHAM, PRESTON, LANCS., COUNTY ASYLUM.—Locum Tenens, unmarried. Salary £7 7*s.* per week, with board, &c.

YORK COUNTY HOSPITAL.—Female House Physician. Salary £200 per annum, with board, &c.

AN appointment for a Medical Referee under the Workmen's Compensation Act, 1906, for the Hull and other County Courts in Circuit No. 16 is vacant. Applications should be addressed to the Private Secretary, Home Office, not later than Dec. 27th.

Births, Marriages, and Deaths.

BIRTHS.

FFRENCH.—At Keldray, Ailesbury Park, Dublin, on the 25th Nov., the wife of Major E. G. Ffrench, M.D., F.R.C.S.E., R.A.M.C., of a son.

MADGE.—On Nov. 27th, at Ashbourne, Derbyshire, the wife of Quintus Madge, M.R.C.S., L.R.C.P. (temporary Lieutenant, R.A.M.C.), of a daughter.

MARRIAGES.

BARRINGTON-WARD—MILES.—On Nov. 28th, at All Souls, Langham-place, Lancelot E. Barrington-Ward, F.R.C.S., of Harley-street, W., to Dorothy Anne Miles, of Abbots Leigh, Somerset.

COCK—TINDALL.—On Nov. 24th, at the Church of the Assumption, Warwick-street, W., Reginald Cock, M.R.C.S., L.R.C.P., to Molly Helen, elder daughter of the late Charles S. Tindall, Commander, R.M. Steam Packet Company, and Mrs. Tindall, Shoreham Beach, Sussex.

LOVELESS—TRASK.—On Dec. 1st, at St. Andrew's Church, Boscombe, Captain W. B. Loveless, M.C., R.A.M.C., to Sybil Mary, second daughter of Mrs. Trask, Boscombe, and the late John J. Trask, of North Houghton Manor, Hants.

DEATHS.

CLARKE.—On Oct. 28th, killed in action, Lieutenant Paul Brooks Clarke, 124th Canadian Pioneers, only son of Dr. and Mrs. W. F. Clarke, of 2132, Queen-street East, Toronto, Canada, aged 21.

GALSWORTHY.—On Nov. 28th, Laurence Galsworthy, M.R.C.S., L.R.C.P. Lond., aged 47 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Short Comments, and Answers to Correspondents.

MATCHES AND PINS.

WITH reference to a recent statement in the House of Commons by Mr. Wardle, Parliamentary Secretary to the Board of Trade, that there are enough matches to go round if each adult will confine his consumption to six matches a day, a statistical minded correspondent writes:—Matches and pins are so indispensable to-day that it is difficult to realise that there was a time when they were not used. Nevertheless, the present shortage of matches and the possible rise of prices in pins, with the consequent need of economy, take our thoughts back to that period. The use of both matches and pins is comparatively modern. As regards matches, although Germany is given the credit for progress in match making, starting in 1680 with one Haukwitz, the first really practical friction matches were made in 1827 in England by John Walker, a druggist, of Stockton-on-Tees, although before that time chemical matches had been made on a small scale which required to be dipped in sulphuric acid to ignite. In 1852 safety matches were made by Lundström, a Swede, and for many years after then were known to almost everybody by the name of "Tandstickers," a corruption of the Swedish name for matches. Although safety matches are supposed only to strike on the box, they will ignite if held against a hot piece of metal such as a hot stove or even rubbed with a swift long stroke on glass. A chlorate of potash tablet rubbed on a safety match-box will light the gas, and so will the spark from a patent metal pocket lighter which happens to have run dry of benzine. Vestas, which are only lengths of fine taper fitted up as matches, although expensive, perhaps may by care be made economical, as if saved after use they can be used again as short tapers for obtaining lights from gas burners. A wax vesta after one short use may, indeed, be used as a tiny candle by splitting the end crosswise to make four feet and standing it on a penny—a light for an emergency.

In October, 1626, in the reign of Charles I., John Tilsby established a pin-making industry, employing a number of people, although brass pins were first brought from France in 1540 and first used in England by Catherine Howard, the wife of King Henry VIII. Indeed, an Act of Parliament was passed for the true making of pins, 34 and 35 Henry VIII. (1542–3) c. 6, but was repealed by 37 Henry VIII. c. 13. To France is due the elegance of the pin, to America about 1830 its modern improvement. Before then several people were employed in making one pin by 14 to 20 distinct operations, but a machine afterwards made them in one. The number of pins used is huge. In 1880 in England the supply was 9 per inhabitant per week; in 1850 it was only 4.

THE CRY OF THE CHILDREN.

"The Robin Society," 421, New Cross-road, London, S.E. 14, of which the King is a patron and whose object is to provide free meals in the winter time, particularly at Christmas-tide, for the very poorest children in the metropolis, makes an earnest appeal for funds. The conditions imposed on the destitute and needy by the war have increased the hard lot of the ill-nourished children of our mean streets, while the funds available for assistance have been smaller, owing to the many extra calls upon charity. But sympathy with suffering demands help, and it must be remembered that the future vitality of the nation depends upon the conservation of the child-life of to-day. In addition to money, clothing of all kinds is urgently needed, and children's games and books and used Christmas-cards are required for the holiday home of the society. Cheques and postal orders should be made payable to "The Robin Society," and crossed London County and Westminster Bank, Ltd., Deptford Branch. The society is unsectarian.

ARTIFICIAL LIMBS.

THE need which has been created as a result of the war has inevitably stimulated the invention, improvement, and production of artificial limbs, and medical men will find the catalogue issued by Mr. F. G. Ernst, 80 and 82, Charlotte-street, London, W. 1, orthopædic mechanician to the National Orthopædic Hospital and other institutions, a useful book of reference. It is a well-illustrated and printed quarto book of 65 pages, and describes in clear language and by diagram and reproduced photographs the mechanical action, not only of artificial limbs, but also of numerous accessory appliances for enabling the wearer to feed and dress himself, shave, smoke, hold a pen, play billiards, handle coins and tools, and attend to lavatory requirements. Instructions

as to the taking of "casts," hints on the use of artificial limbs, and details for measurement when ordering are also given.

NATIONAL BABY WEEK COUNCIL.

THE report of this council, which has just been issued, contains an account of the activities of the organisation during Baby Week, July 1st to 7th, 1917. The donations amounted, it seems, to over £4000, and this sum, together with the profit on the exhibition and receipts from other sources, made a total of £7275 2*s*. 4*d*. Lord Rhondda, in an introduction to the report, states that an atmosphere of inquiring interest has been created, and suggests that all societies and workers for mothers and children should take advantage of that interest, so that next year the council may be able to focus attention on new points.

THE "CRAIGLEITH HOSPITAL CHRONICLE."

To the Christmas number of the *Craigleith Hospital Chronicle*, which begins a new volume, Sir Ernest Shackleton, R.N., contributes an interesting article entitled "Across the Antarctic in an Open Boat." Notes on the Scottish Navy are continued, and the inspiring story of Some Scottish Regiments, by Dr. J. A. MacDougall, is concluded.

E. F. T.—If such a case were taken before a county court judge, with the brother as defendant, the chances seem to us to be about equal. Our feeling is that the brother is liable, but that all uncertainty and unpleasantness would have been spared if the medical practitioner had ascertained the pecuniary position from the first. This would have given the brother a chance of limiting his responsibilities or of making some arrangement with the patient.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Mr. B. Moore: The Formation of Nitrites from Nitrates in Aqueous Solution by the Action of Sunlight, and the Assimilation of the Nitrites by Green Leaves in Sunlight.—Mr. J. R. Moir: The Transition from Rostro-carinate Flint Implements to the Tongue-shaped Implements of River-terrace Gravels (communicated by Sir Ray Lankester, K.C.B.).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 10th.

ODONTOLOGY (Hon. Secretaries—F. N. Doubleday, J. Howard Mummery): at 7.30 P.M.

Casual Communication:

Mr. W. H. Dolamore: A Case of Gunshot Wound of the Mandible treated with Bruhn's Needles.

Paper:

Major Kazanjain, R.A.M.C.: Osseous Sutures combined with Maxillary Splints for the Immobilisation of Extensive Fractures of the Lower Jaw.

Exhibition:

There will be an Exhibition of Appliances in the Patients' Room behind the West Hall on Monday, Dec. 10th, from 11 A.M. to 7.30 P.M.

Wednesday, Dec. 12th.

OPHTHALMOLOGY (Hon. Secretaries—A. W. Ormond, Leslie Paton): at 8.30 P.M.

Paper:

Lieut.-Colonel Gordon Holmes, C.M.G.: Visual Disturbances from Cerebral Lesions.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY.—4.30 P.M., Lord Charnwood: Technical Training for Disabled Soldiers and Sailors.

HARVEIAN SOCIETY OF LONDON, at the Library of the St. Mary's Hospital Medical School.

SATURDAY.—8.30 P.M., Discussion on Neurasthenia (opened by Dr. F. W. Mott).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Course of Lectures on the Anatomical and Physiological Principles underlying the Treatment of Injuries to Muscles, Joints, and Bones:—

MONDAY.—5 P.M., Lecture VIII.:—Prof. A. Keith: The Principles underlying the Practice of Modern British Orthopædic Surgeons.

WEDNESDAY.—5 P.M., Lecture IX.:—Prof. A. Keith: The American School of Orthopædic Surgeons.

FRIDAY.—5 P.M., Lecture X.:—Prof. A. Keith: Orthopædic Practice in France and Italy.

The Lectures will be illustrated by specimens from the Army Medical Collection now on exhibition in the Museum and also by specimens from the College Collection.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Arthur Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Arthur Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N. 15

MONDAY.—2.30 P.M., Children's Diseases: Dr. T. R. Whipham. Gynæcological Diseases: Mr. F. L. Provis. Surgical Operations: Mr. E. Gillespie. 3 P.M., Medical In-patients: Dr. R. M. Leslie. 7 P.M., Venereal Clinic: Dr. Kinsella.

TUESDAY.—10 A.M., Surgical Operations: Mr. J. Howell Evans. 2.30 P.M., Medical Out-patients: Dr. A. G. Auld. Surgical Out-patients: Mr. Howell Evans. Nose, Ear, and Throat Diseases: Mr. C. H. Hayton. X Rays: Dr. Metcalfe. 3.30 P.M., Medical In-patients: Dr. A. J. Whiting.

WEDNESDAY.—2.30 P.M., Medical Out-patients: Dr. T. R. Whipham. Diseases of the Skin: The Dermatologist. Eye Diseases: Mr. A. S. Worton. Operations:—Nose, Ear, and Throat: Mr. Hayton; 4 P.M., Eyes: Mr. Worton. 5 P.M., Venereal Clinic: Mr. E. Gillespie and Mr. Benians.

THURSDAY.—2.30 P.M., Medical Out-patients, Dr. A. J. Whiting. Surgical: Mr. H. W. Carson. X Rays: Dr. Metcalfe. Gynæcological Operations: Dr. A. E. Giles. 3.30 P.M., Medical In-patients: Dr. R. M. Leslie.

FRIDAY.—2.30 P.M., Surgical Out-patients: Mr. Gillespie. Eye Diseases: Mr. A. S. Worton. 7 P.M., Venereal Clinic: Mr. E. Gillespie and Mr. Benians.

SATURDAY.—2.30 P.M., Surgical Operations Mr. H. W. Carson.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—4 P.M., Dr. C. Kempster: X Rays. Rodent Ulcer and Malignant Diseases.

WEDNESDAY.—5 P.M., Mr. W. Griffith: Skin Diseases in the Army.

THURSDAY.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Erythema and Ul-erythema.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 5th, 1917.

Date.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 29	...	65	55	49	48	50	Cloudy
,, 30	...	58	54	49	50	51	Overcast
Dec. 1	...	74	54	48	47	48	Overcast
,, 2	...	60	42	39	36	39	Fine
,, 3	...	56	42	33	31	34	Fine
,, 4	...	44	41	32	31	33	Foggy
,, 5	...	61	43	31	38	41	Overcast

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

Offices: 423, STRAND, LONDON, W.C. 2.

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Messrs. Wm. Wood and Co., of New York, are relinquishing their Agency for the supply of THE LANCET in the United States at the end of the present year. The Manager of THE LANCET will be pleased to supply copies direct from the London Office to subscribers in the United States at the strictly prepaid rate of $8 for twelve months. Subscriptions may commence at any time. Drafts and Money Orders should be made payable to the Manager, Mr. CHARLES GOOD, 1, Bedford-street, Strand, London, W.C. 2, England.

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